September
1961

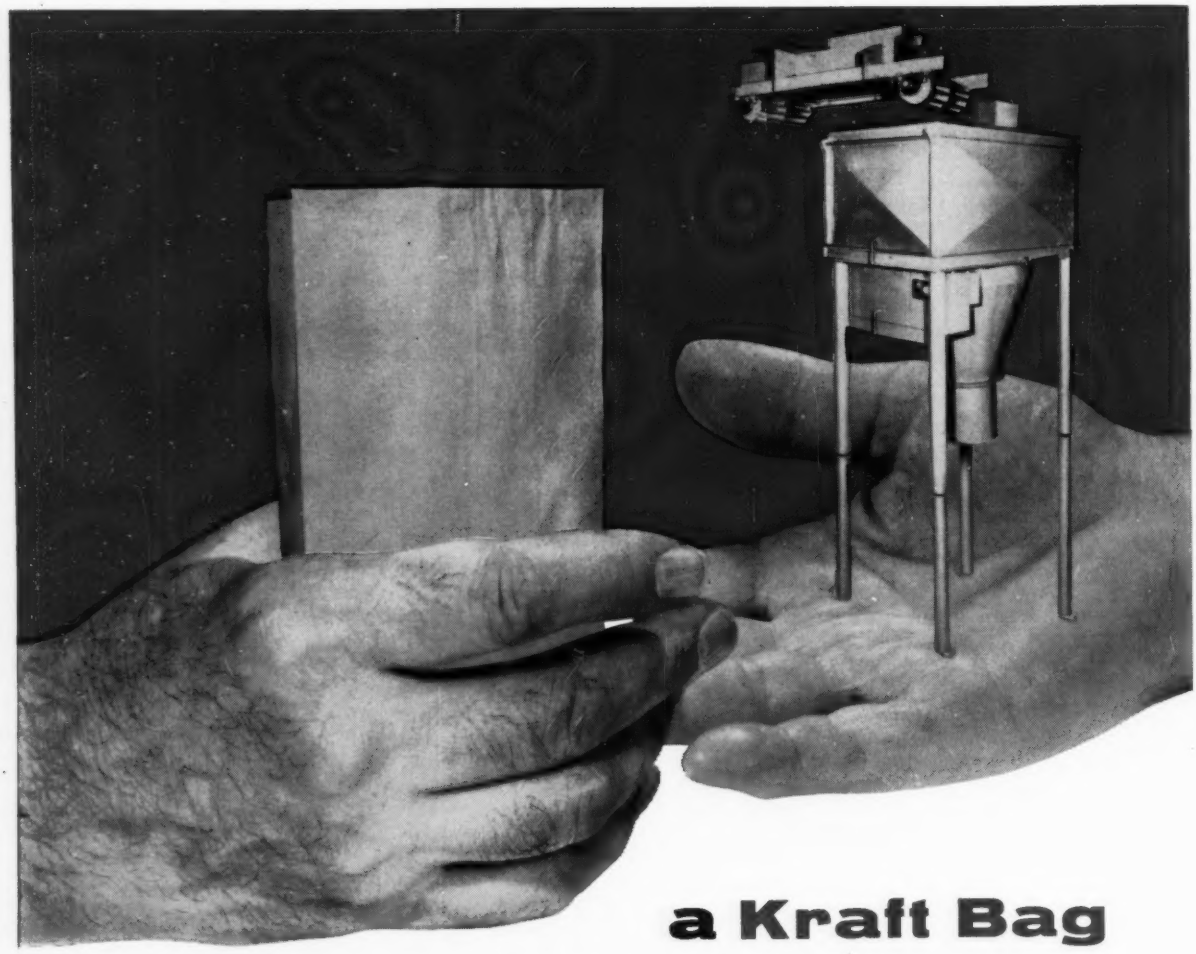
COMMERCIAL FERTILIZER

and PLANT FOOD INDUSTRY

Crop Yields and Prices Indicate Good Fertilizer Market for 1962

SEE PAGE 19

Advertisement of Nitrogen Division, Allied Chemical Corporation



a Kraft Bag and The Kraftpacker *automatic open-mouth bag filling machine* go hand-in-hand!

Each does a good job by itself,
and you can buy one without the other
...but working together as a team
you get a packaging combination
that is hard to beat for dependability,
efficiency and sound economy.

The **KRAFT BAG** Div.
St. Marys Kraft Corporation, subsidiary of

GILMAN PAPER COMPANY
111 West 50th Street, N. Y. 20
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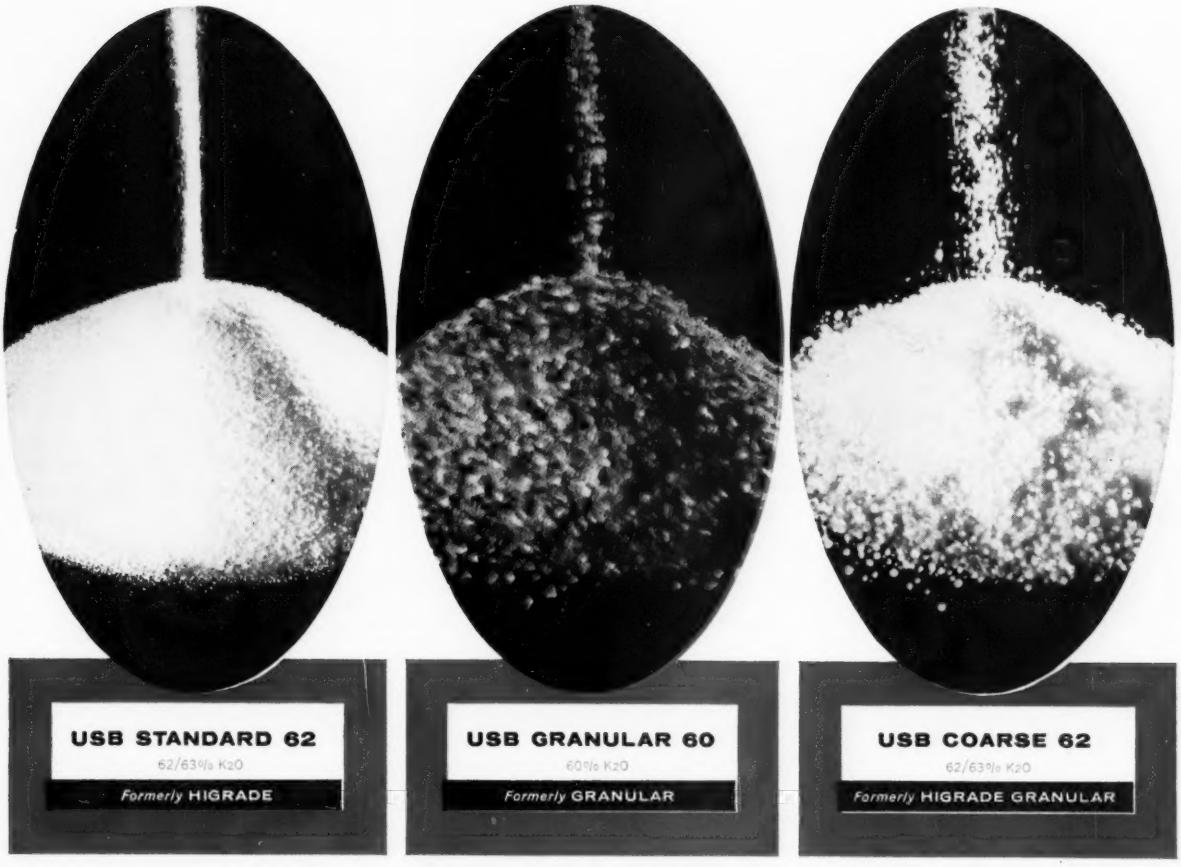
Exclusive Sales Agents for The Kraftpacker

Will you extend a hand in welcome to our representative?

We'll be glad to see your representative.
☐ In the meantime, please send brochure.

Name.....
Company.....
Address.....
City..... State.....
Products manufactured:.....
CF

3 types of POTASH specially sized for you...



To make the best fertilizers...

Each of our three types of high quality muriate of potash is ideally sized to meet your particular manufacturing requirements. Both of the white grades – STANDARD and COARSE – contain the highest possible K_2O (62/63%) and make feasible the manufacture of the highest analysis mixtures. Our GRANULAR 60 is ideally suited for mixtures requiring muriate of a larger particle size . . . or for direct application. All three products are refined to assure free-flowing and non-caking properties during handling and storage.

For nearly thirty years our products and services have kept pace with your exacting needs. Call, telex or wire one of our nearby offices for prompt delivery.

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630 Shatto Place / DUnkirk 7-5151

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published monthly by

Walter W. Brown Publishing Company, Inc.

75 Third Street, N. W.

Atlanta 8, Georgia

Phone TRinity 4-4160

ERNEST H. ABERNETHY
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Subscription rates:
United States $3.00 per year; 3 years, $7.50.
Canada: $5.00 per year; 3 years, $12.00.
Foreign: $10.00 per year; 3 years, $24.00.
Single copy; current issue, 50 cents,
back issues, $1.00.

COMMERCIAL FERTILIZER

and PLANT FOOD INDUSTRY

Vol. 103, No. 3 September, 1961

Established 1910

COMMENTING FREELY

by

Bruce Moran

It is to be hoped that somewhere a research team is pessimistic enough to be studying how to overcome the effects of fallout on our soils. I say pessimistic because I have no idea the knowledge will be needed in the lifetime of any CF reader.

But it might be needed, and the knowledge could be vital to the future of the world's population.

A few years or so ago we wondered in print about the soils around Hiroshima. It was idle wondering then. It could be mighty valuable wondering now. And Hiroshima was a logical place to start research.

When Holland breached its dams in self defense during World War II, the salt was finally eliminated from the soil and the tulips bloomed again. We had a scholarly article on the method in these pages some 10 years ago.

We would be glad to publish one on fallout now, if an authentic paper can be written now.

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Second-class postage paid at Atlanta, Georgia. COMMERCIAL FERTILIZER and Plant Food Industry is published monthly by Walter W. Brown Publishing Co., Inc., 75 Third St., N. W., Atlanta 8, Georgia.

How Union-Camp's 5-Star Plan saved multiwall bag user over $130,000 a year

Making things the same can sometimes make a whale of a difference. Particularly in a multiwall bagging operation. The Smith-Douglass Company, Inc., of Norfolk, Virginia proved it recently when they put Union-Camp's 5-Star Plan into action. The difference—in annual packaging savings—came to over $130,000 a year!

Standardize = Economize

Initial 5-Star Plan surveys at Smith-Douglass' six plants revealed that *standardization* held the key to major cost reductions. Three plants used sewn open-mouth multiwall bags. One used sewn valve bags. The remaining two plants used both types of bags.

Union-Camp's multiwall specialists showed that $30,000 a year could be saved by converting all six plants to sewn open-mouth bags and using open-mouth bag filling machines.

5-Star Plan in action. Plant surveys made by Union-Camp multiwall specialists paved the way for the major packaging savings described here.

That was only the beginning. By carrying the change-over one step further, and standardizing on *size* and *construction* of multiwall bags, the company would save another $22,000 a year.

1 Design Replaces 160

Next, Union-Camp's survey team analyzed the company's existing bag *designs*. They found there were about 160 designs being used. Here, again, standardization was recommended.

By creating one basic design, eliminating an expensive yellow outer sheet, and using the same printing copy for all bags, the company netted additional economies of $84,000 a year.

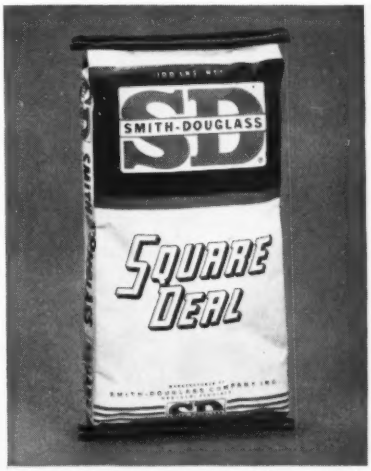
$30,000 plus $20,000 plus $84,000. Total annual packaging savings—$134,000.

$30,000 a year savings resulted from converting to sewn open-mouth multiwalls in company's six plants.

How Much Could You Save?

Hundreds of companies—large and small—reduce their multiwall packaging costs by taking advantage of Union-Camp's 5-Star Plan. This comprehensive service is free. It covers bag design, bag construction, specifications control, packaging machinery and a survey of your materials handling operation. An improvement in any one of these areas conceivably could result in substantial economies for you.

See your local Union-Camp man for complete details.



This basic bag design, now used for all Smith-Douglass brands, reduced company's multiwall costs by $84,000.

FREE 16-PAGE BOOKLET

Write Dept. M-4 today for a free copy of Union-Camp's new 5-Star Plan booklet. It describes many case histories showing how packers like yourself have achieved greater efficiency and economy in their multiwall packaging operations.

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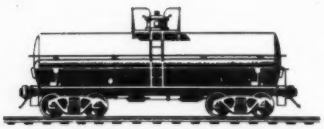
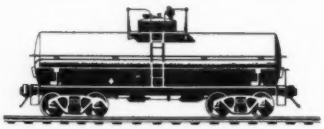
MULTIWALL BAGS
Union Bag-Camp Paper Corporation 233 Broadway N.Y. 7, N.Y.

5 top quality Phillips 66 materials for production of Premium Fertilizers



ANHYDROUS AMMONIA



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TRIPLE SUPERPHOSPHATE

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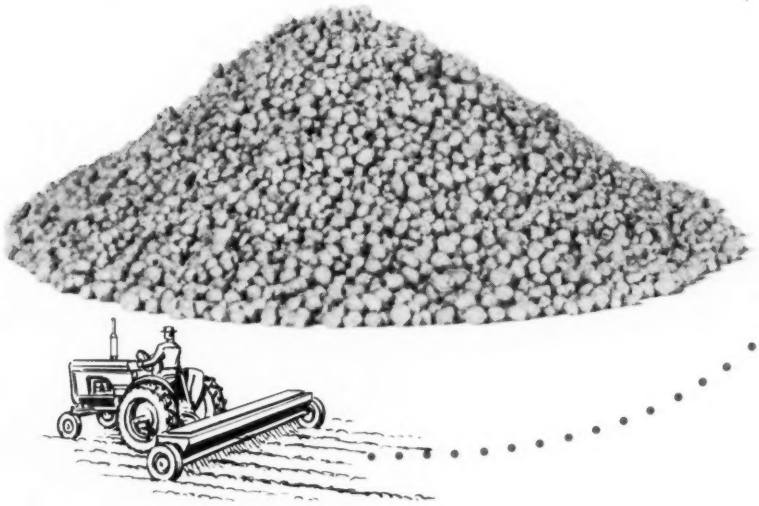
TRIPLE SUPERPHOSPHATE

46% Available Phosphoric Acid



A clean, dust free product of uniform particle size that will not bag set under normal conditions. Flows freely to provide uniform distribution. Available in Bags or Bulk.

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TAMPA, FLORIDA
Division
TENNESSEE CORPORATION

JUST AROUND THE CORNER

By Vernon Mount

Economic conditions in the US are good. Recovery came faster than anticipated, and a boom seems as definite as can be. The public has money and is spending it. War psychology always helps loosen pocketbooks; folks fear they won't be able to get things later. And, of course, that extra three billion is coming into the picture as blueprints turn into production.

Project 8% is the government's plan to force growth of 8% each year in 1962 and 1963. Beyond that there's the plan to make our growth average 4½% annually from now on. This involves more spending, letting inflation take care of itself as deficits continue. Control of inflation as much as possible – but the goal is to lift the GNP to new heights.

Natural growth is in the cards, regardless of Government pumping. We should see this in the consumer-product field, as well as in the field of plant equipment. Things will be good because we are a growing country, with plenty of younger generation coming along. Optimism makes good sense for the next decade...subject, of course, to alarms and excursions from overseas.

Yours faithfully,

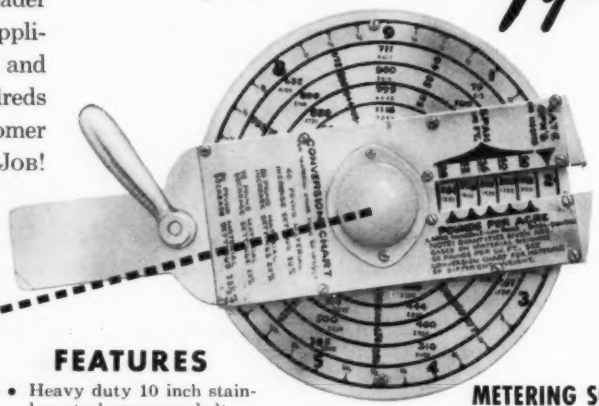
Vernon Mount

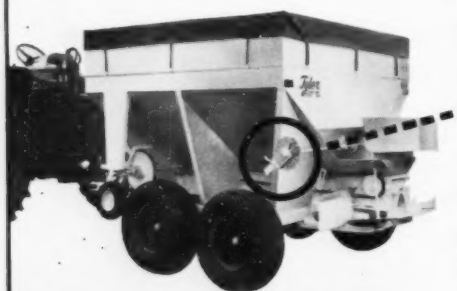
Every once in a while a good idea comes along in any business—and a year ago it happened in the fertilizer industry when TYLER introduced the F2 Tractor Spreader and with it a new system of fertilizer application. Common sense engineering and practical merchandising has put hundreds of F2's in the field with excellent customer acceptance—and they're DOING THE JOB!

*DIAL-A-MATIC®

* One of many new features found on the Tyler F2-B Tractor Spreader

By Tyler





FEATURES

- Heavy duty 10 inch stainless steel conveyor belt
- Rugged tubular steel frame
- Angled metering gate for smooth material flow
- Up to four ton capacity

METERING SO NEW— IT'S UNBELIEVABLE!

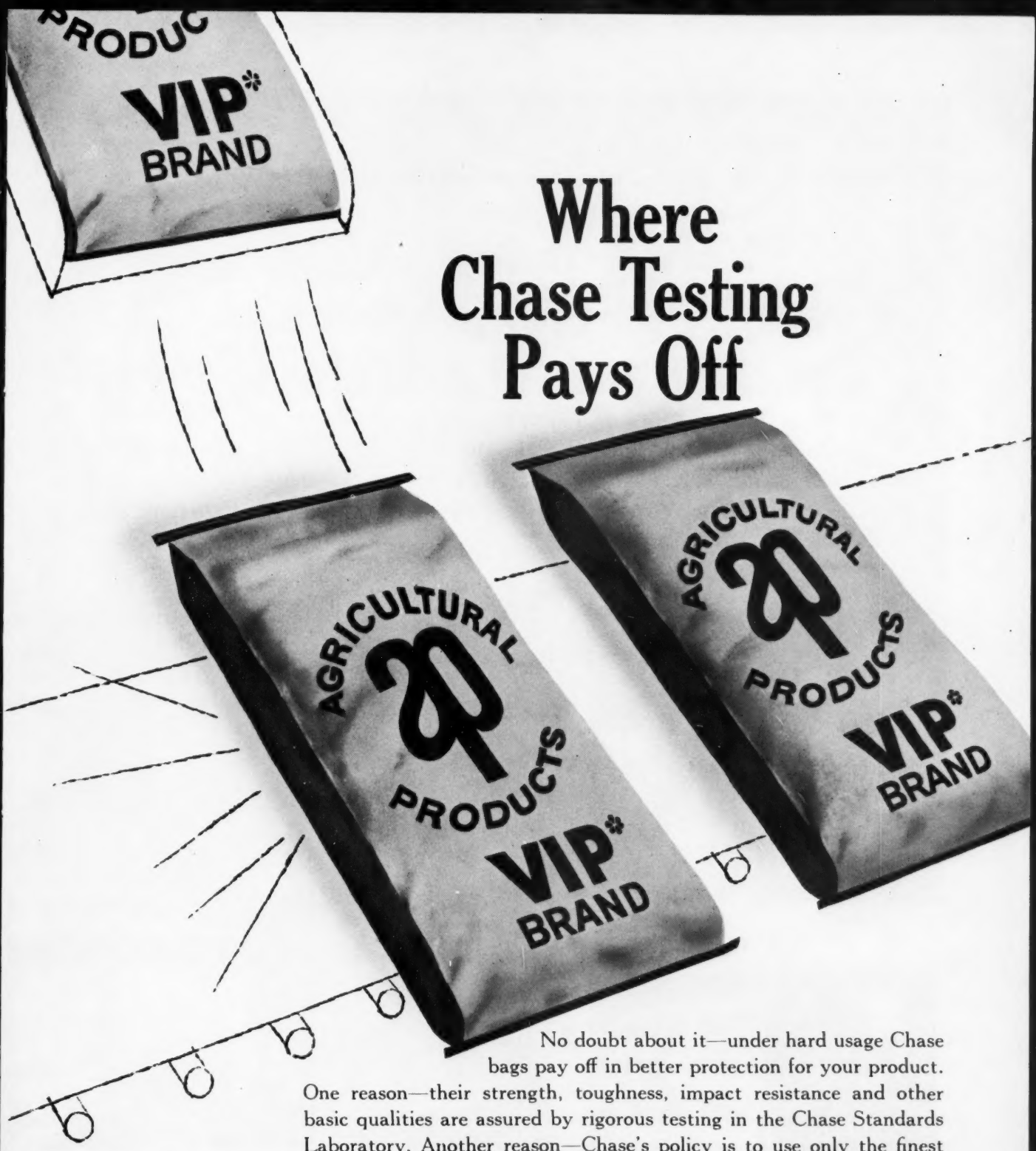
In this jet age of missiles and speed, it's the survival of the fittest . . . super mechanization and careful and precise engineering to produce products that will perform in the best way possible. Tyler introduces the Model F2-B—DIAL-A-MATIC SPREADER—A TOUGH MACHINE BUILT FOR A TOUGH JOB!

For descriptive literature and full information, write or call

Tyler MANUFACTURING COMPANY, INC.

Phone Viking 2-8581

East Highway 12 Benson, Minn.



Where Chase Testing Pays Off

No doubt about it—under hard usage Chase bags pay off in better protection for your product. One reason—their strength, toughness, impact resistance and other basic qualities are assured by rigorous testing in the Chase Standards Laboratory. Another reason—Chase's policy is to use only the finest materials available, carefully selected from the best of *many* market sources. You pay no more for this extra assurance of quality—it comes as "part of the package" from Chase. Got a packaging problem? Call your Chase Man for prompt, courteous assistance.

CHASE BAG COMPANY
355 Lexington Avenue • New York 17, N.Y.

* *A Chase Bag will make your product a Very Important Package*

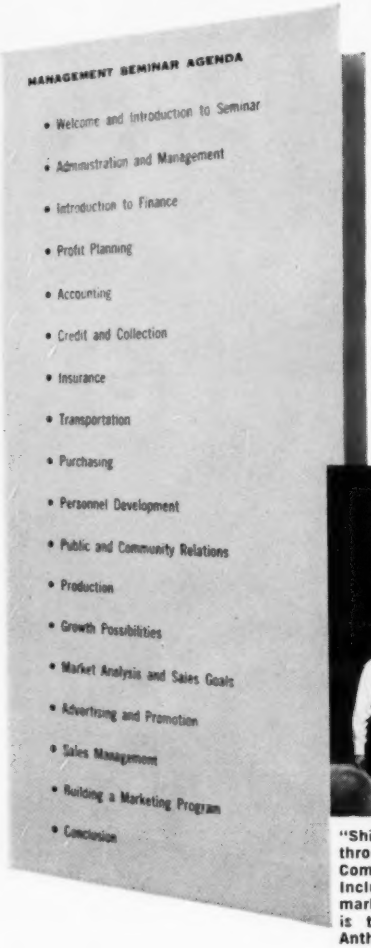
MULTIWALLS • TEXTILE • PLASTIC AND LAMINATED BAGS • CONSUMER-SIZE PAPER BAGS
AND OTHER PACKAGING MATERIALS

Reporting on IMC's second Fertilizer Management Seminar:

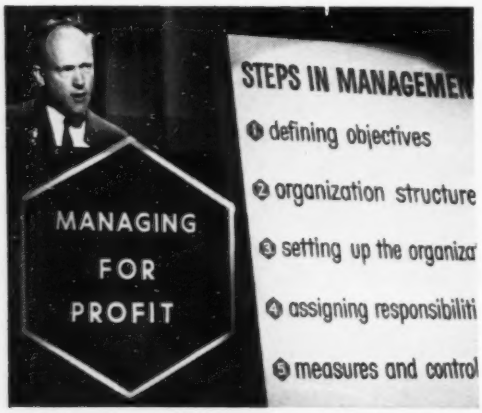
"Years of top management experience packed into 3 priceless days!"

. . . unanimous opinion of over 60 fertilizer industry executives who attended IMC's pace-setting Full Orbit demonstration of total service to customers

Guest speaker John A. Baker, Director of Agricultural Credit said, "As your most important customers, farmers appreciate the continuing research conducted by the fertilizer industry, and the constant improvement in your products."



"Shirtsleeve" sessions took participants through complete set-up of the Makmor Company, an imaginary fertilizer company. Included management, sales, finance, market analysis, compensations. Typical is the market potential phase led by Anthony Cascino, IMC Marketing V.P.



No organization can have clear cut programs without definite objectives and rigidly defined responsibilities. Here R. J. DeLargey, V.P. of IMC's Technical Division, presents the fundamentals of managing for profit.

Over 60 management representatives of the fertilizer manufacturing industry heard IMC Management officials outline and discuss the requirements for profitable management and selling.

Fertilizer company partners, presidents, general managers and other executives from all over the nation, took active part in IMC's highly successful "Managing for Profit" Seminar, July 19, 20 and 21 at Skokie, Illinois.

IMC FULL ORBIT SERVICE

Top IMC management specialists – representing every important department of fertilizer operations – led practical discussions on a variety of subjects . . . ranging from "Introduction to Finance" through "Building a Marketing Program".

Objective of this Seminar – to help fertilizer management reduce in-plant processing costs, improve marketing and merchandising activities, **manage for more volume and profit!**

Your IMC representative can fill you in on all the information covered during the Seminar.

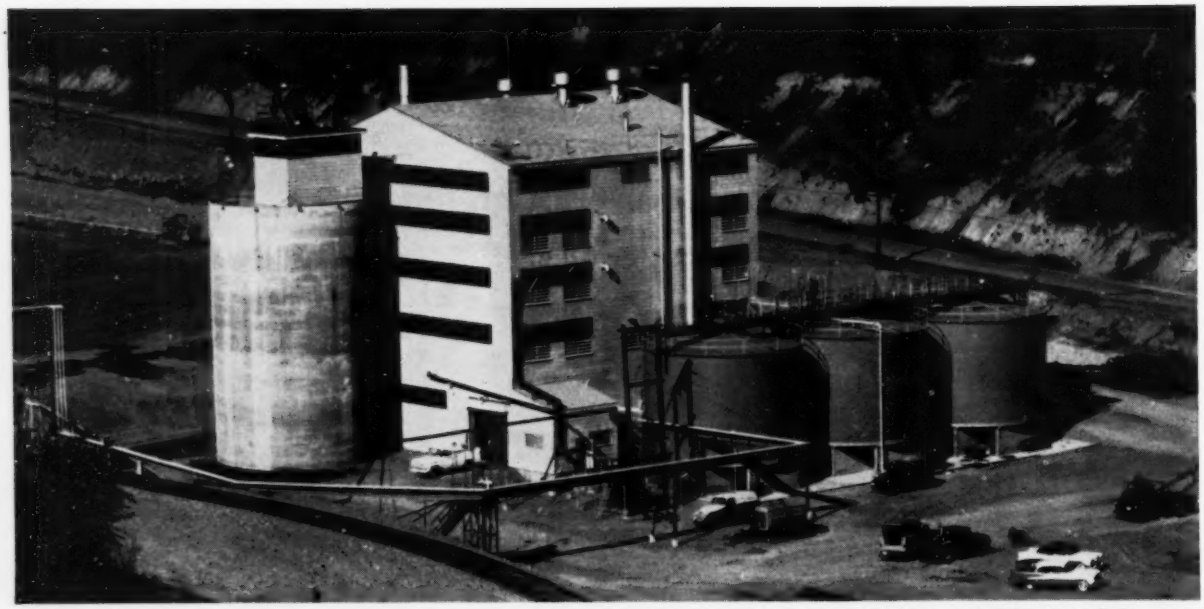
This IMC-sponsored conference is another example of the Full Orbit concept – a concept dedicated to **Total Service** in the fertilizer industry!

FO-2-2

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

Agricultural Chemicals Division, Materials Dept, • Administrative Center • Skokie, Illinois

IMC



Aerial view shows the complete Phosphoric Acid Plant of The Bunker Hill Company at Kellogg, Idaho. Three 35' Dorr Storage-Clarifiers are seen in the foreground.

SO_2 from zinc plant opens way for phosphoric acid production at

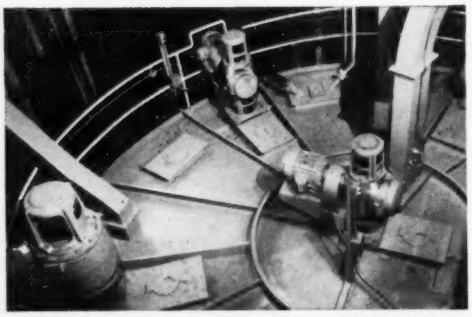
THE BUNKER HILL CO.

Another example of Dorr-Oliver engineering

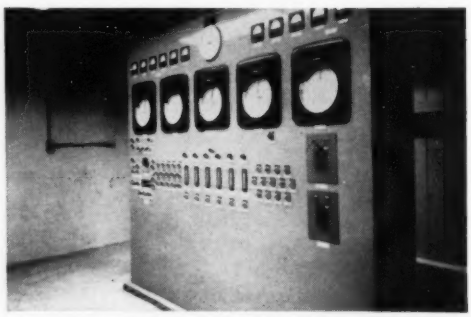
Operated in conjunction with the Company's important zinc reduction facilities nearby, the new Phosphoric Acid Plant of The Bunker Hill Company, Kellogg, Idaho, was constructed in 42 weeks, put into production in January this year, and very quickly achieved capacity and efficient operation. The plant has a design capacity of 130 tpd of 54% P_2O_5 product acid (70 tpd P_2O_5).

The Dorrco Strong Phosphoric Acid Process is used, utilizing Western phosphate rock and sulphuric acid manufactured from SO_2 gas from the zinc plant roasting operation. Complete engineering, plant design, purchasing of equipment and supervision of erection and initial operation were handled by the Dorr-Oliver organization.

Selection of Dorr-Oliver was based on over 40 years of experience in constructing wet process P_2O_5 and complete fertilizer plants throughout the world. For information on the complete range of D-O engineering services available to the Fertilizer Industry, write to Dorr-Oliver Inc., Stamford, Connecticut.



Top view of newly-developed Dorr-Oliver Single Tank Reactor used in this plant for the first time.



The entire plant operation is controlled from this central instrument panel.

DORR-OLIVER

WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT

Bartlett and O'Bryan Fertilizer Company manufactures complete dry and liquid fertilizers in this up-to-date plant at Owensboro, Ky. Read how advanced SPENSOL GREEEN* Ammoniating Solutions help them control corrosion:

Progressive 10,000-Ton Kentucky Plant Chooses Corrosion-Resistant SPENSOL GREEEN

Supplying the plant food needs of farmers in Western Kentucky, Bartlett and O'Bryan Fertilizer Company offers a broad line of fertilizers. Their 10,000-ton capacity plant (above) which began operation in early 1953 keeps busy manufacturing complete fertilizers in both dry and liquid forms. In addition, they also feature a full selection of straight nitrogen *Spencerizers*. Credited with pioneering direct application ammonia and solutions in their area, this progressive firm provides extensive bulk spreading and application services.

With heavy production schedules to meet, Bartlett and O'Bryan officials know the importance of guarding manufacturing and storage equipment against corrosion damage. They specify genuine SPENSOL GREEEN — the *corrosion-resistant ammoniating solutions*. Comparison shows that SPENSOL GREEEN'S advanced corrosion inhibitor can greatly prolong the life of your valuable plant equipment.

Improved corrosion protection costs you nothing extra when you use genuine SPENSOL GREEEN. So, why let the unseen ravages of corrosion shorten the life of your valuable production and storage facilities? Avoid expensive repair bills and unnecessary down time by controlling corrosion with corrosion-resistant SPENSOL GREEEN Ammoniating Solutions. Contact your Spencer representative right away.

*A registered trademark of Spencer Chemical Company.

Insist on **SPENSOL GREEEN**

CORROSION-RESISTANT AMMONIATING SOLUTIONS

SPENCER®

Spencer Chemical Company
Dwight Bldg., Kansas City, Missouri

Sales Offices: Atlanta, Ga., Chicago, Ill., Memphis, Tenn., Omaha, Nebr., Kansas City, Mo.
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Send for a supply of "New Uses for Old Burlap Bags"

That's the name of a *booklet* you ought
to read. Hand it out to your customers, too,
with your own name imprinted on it.
Burlap is your best bet for lowering your packaging costs.
Why? Because Burlap bags reduce in-plant
breakage and rehandling. Besides, Burlap bags are
your compact 100-pounds-plus unit!
So strong that used Burlap bags serve important uses
around the farm. As the song says, "Old Burlap never
dies, it only wears awa-a-y!"

THE BURLAP COUNCIL

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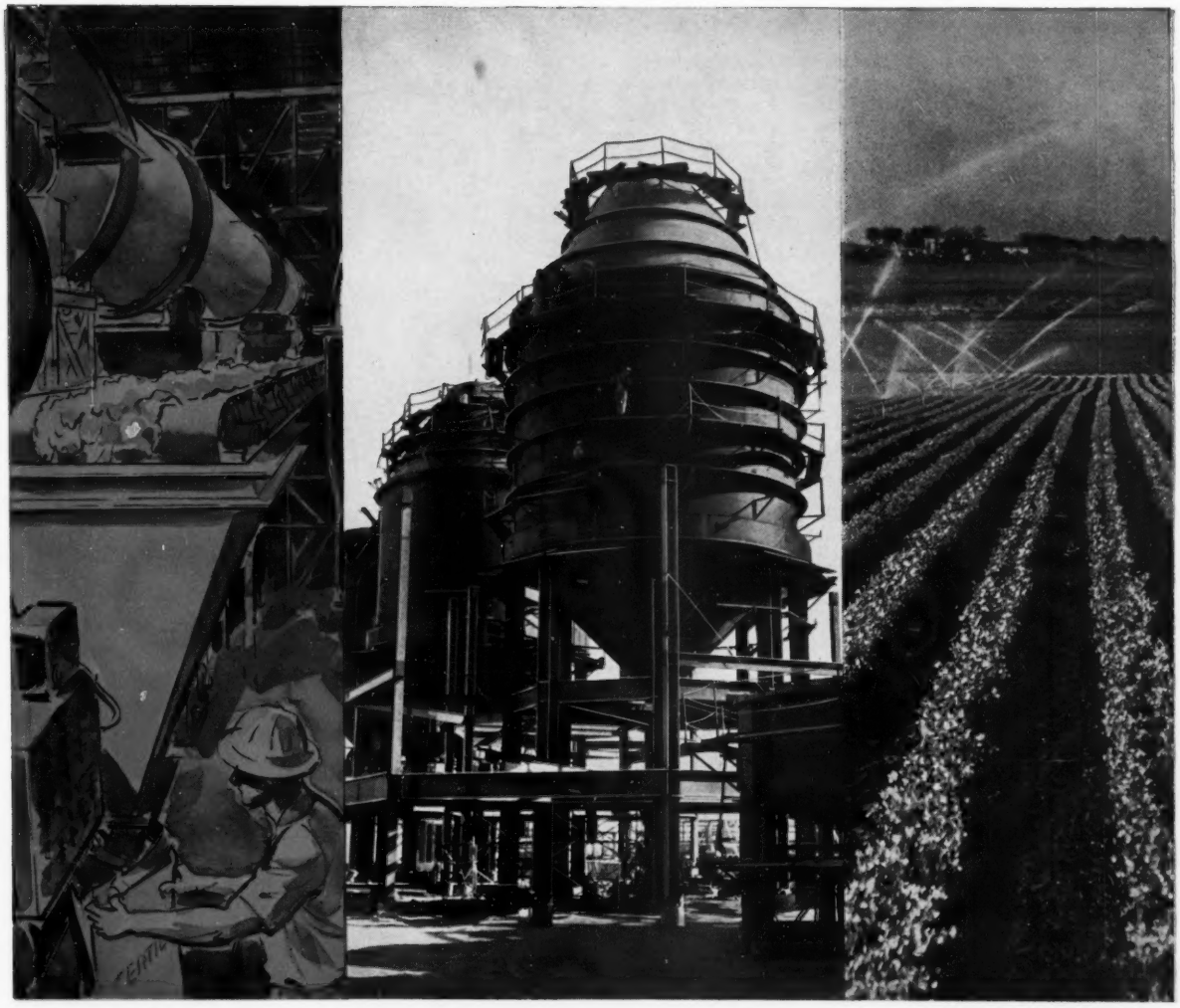

3-WAY BOOST IN POTASH

INCREASED PRODUCTION OF TRONA® MURIATE WILL SOON MEAN BETTER SERVICE...BETTER MIXED FERTILIZERS...HIGHER YIELDS OF QUALITY CROPS

Increased production of Muriate of Potash at Trona will be measured in three-way benefits. Expanded potash facilities, shown above, will soon make available from AP&CC more tonnage of free-flowing, uniform granule size Trona potash in granular and regular grades for agriculture's expanding needs. To the mixer, more quality potash from Trona will mean a better finished product . . . and to the grower, higher yields of quality crops.

TRONA® American Potash & Chemical Corporation

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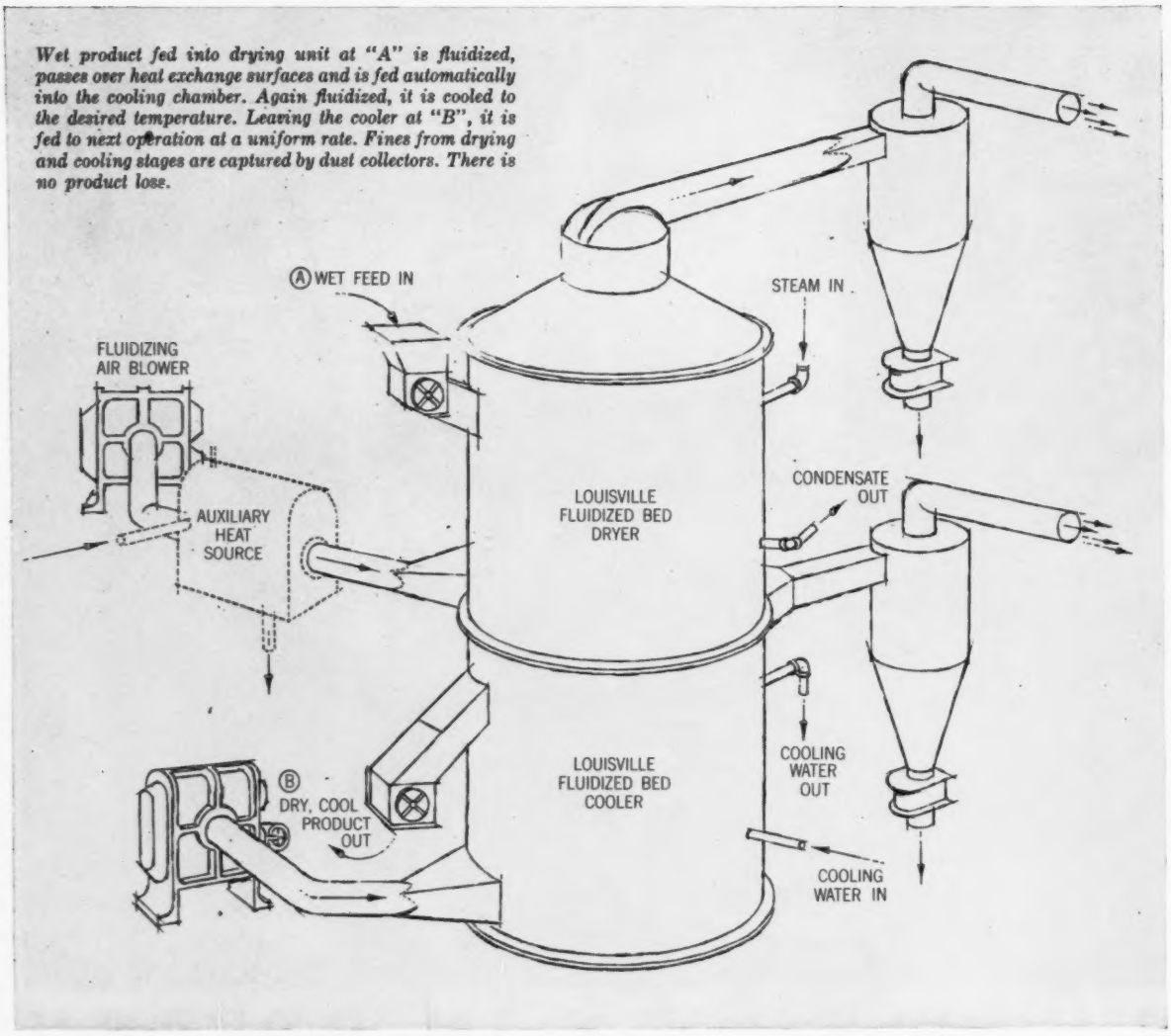
99 Park Ave., New York 16, N.Y.

Other Sales Offices: Chicago • San Francisco • Portland (Ore.) • Atlanta • Columbus (O.) • Shreveport


Wet product fed into drying unit at "A" is fluidized, passes over heat exchange surfaces and is fed automatically into the cooling chamber. Again fluidized, it is cooled to the desired temperature. Leaving the cooler at "B", it is fed to next operation at a uniform rate. Fines from drying and cooling stages are captured by dust collectors. There is no product loss.
Ⓐ WET FEED IN
STEAM IN
FLUIDIZING AIR BLOWER
AUXILIARY HEAT SOURCE
LOUISVILLE FLUIDIZED BED DRYER
CONDENSATE OUT
LOUISVILLE FLUIDIZED BED COOLER
COOLING WATER OUT
Ⓑ DRY, COOL PRODUCT OUT
COOLING WATER IN

Major Break-Through in Drying and Cooling Techniques for Prilled and Granulated Fertilizers Announced by **GENERAL AMERICAN**

A new system for drying and cooling ammonium nitrate prills, urea prills and granulated mixtures has been perfected by General American through their development of Louisville Fluidized Bed* Equipment. Vertically coupled units functioning as a two or three stage dryer and cooler provide a continuous operation. Dust losses due to attrition are negligible as the material is cushioned by the fluidizing air. High heat transfer permits lower operating temperatures, preventing case hardening and resultant locked-in moisture.

Louisville Fluidized Bed equipment offers these advantages:

1. Accurate, instantaneous temperature control
2. High heat transfer that permits compact design
3. Low maintenance costs (no moving parts)
4. Less cleaning time and labor
5. Less floor space (equipment is vertical)
6. No hot spots (product is fully protected)

Because of their simplicity, Louisville Fluidized Bed dryers and coolers adapt readily to complete automation.

*Patents Pending

For full details about this revolutionary development in drying techniques, write for bulletin #FBD-61

Process Equipment Division—Louisville Dryers

GENERAL AMERICAN TRANSPORTATION CORPORATION

135 South LaSalle Street
Chicago 3, Illinois
Offices in principal cities

PROCESS EQUIPMENT DIVISION GENERAL AMERICAN TRADE MARK

THEIR BUSINESS IS MAKING YOUR BUSINESS BETTER

They're four of several hundred Cyanamid people who mine, process, research, deliver and service phosphatic materials for your acidulation and mixed fertilizer business. These people put Cyanamid's more than 40 years of phosphate experience into products and services you can use.

Services you can use

Traffic Service: Cyanamid traffic specialists are ready to route and ship your orders without delays. Their knowledge can save you money, and can make your operation run even more efficiently.

Technical Service: Cyanamid's staff of technical experts are constantly at your service. Make your formulation and production problems theirs. That's their job.

Sales Service: Cyanamid sales representatives are available to work with and for you in expanding present markets or in establishing new markets.

Products you can use

Cyanamid's phosphate business is the mining and manufacturing of the highest quality products for your mixed fertilizer requirements.

- Florida Natural Phosphate Rock.
- TREBO-PHOS® – Triple Superphosphate.
- Phosphoric acid – an economical source of P_2O_5 for high analysis fertilizers.

American Cyanamid Company, Agricultural Div., Princeton, N. J. ®*TREBO-PHOS is American Cyanamid Company's trademark for its triple superphosphate.*

One of Cyanamid's prospecting crews checks a sample just taken from the well. Their work in locating and verifying phosphate deposits is essential in maintaining adequate reserves of mineable, high-grade phosphate rock for your requirements in future years.

CYANAMID

PHOSPHATE PRODUCTS

CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE

SYMBOLS OF PLANT LIFE

HIGH-K

A 20TH CENTURY SYMBOL FOR HIGHEST QUALITY POTASH

In the middle ages, working with little help from prior research, alchemists frequently developed materials by accident.

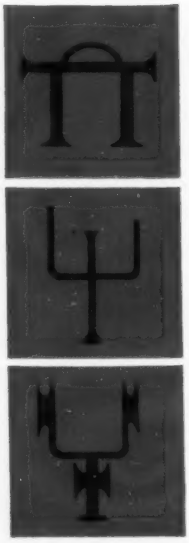
TODAY, MATERIALS ARE DEVELOPED BY PLAN TO MEET A NEED—JUST AS EACH TYPE OF HIGH-K MURIATE IS MADE TO MEET SPECIFIC REQUIREMENTS.

STANDARD HIGH-K MURIATE IS TAILOR MADE FOR CONVENTIONAL FERTILIZER MANUFACTURE AND VARIOUS RATIOS OF GRANULATED GRADES. IT FEATURES UNIFORM PARTICLE SIZE RANGE AND CHEMICAL ANALYSIS.

COARSE HIGH-K MURIATE IS USED IN THE MANUFACTURE OF CONVENTIONAL FERTILIZER AND IS ESPECIALLY USEFUL IN GRANULATION PLANTS. REASON: A CRYSTAL STRUCTURE WHICH DOES NOT BREAK DOWN WHEN ACIDS AND OTHER LIQUIDS ARE USED IN FORMULATION.

GRANULAR HIGH-K MURIATE IS A LARGER PARTICLE SIZE MURIATE FOR SPECIAL USE. SOUTHWEST POTASH PIONEERED THE PRODUCTION OF THIS ALL COMPACTED PRODUCT.

OUR PLANT PROCESSES ARE CONTINUALLY BEING MODERNIZED TO SUPPLY TYPES OF MURIATE NEEDED AND PREFERRED BY FERTILIZER MANUFACTURERS. ON SCHEDULE SHIPMENT, CAR AFTER CAR, DAY AFTER DAY, IS MAINTAINED THROUGHOUT THE YEAR.



Medieval alchemists' symbols for potash and cribbled ashes

SOUTHWEST POTASH CORPORATION

1270 Avenue of the Americas, New York 20, N.Y.

Arcadian® News

Volume 6 | Nitrogen Division, Allied Chemical Corporation | Number 9

Crop Yields and Prices Indicate Good Fertilizer Market for 1962

High crop yields along with increased government payments to farmers for reduced acreages of cash crops are promising indications of a good fertilizer year in 1962.

According to the latest crop report, the corn acreage in 1961 was down 18%, but the acreage planted to corn averaged 57.5 bushels per acre. This record-breaking average means a big drain on plant food. Based on known plant food requirements, the 1961 crop of corn *(grain, not including stover or silage)* removed from the soil 1,508,549 tons of nitrogen, 586,489 tons of phosphoric acid and 418,872 tons of potash.

Much of the acreage planted to corn did not get good fertilization, due to the late, wet spring season and the delayed announcement of the feed grain program. This means that many farmers who failed to use enough fertilizer in 1961 will be better prospects in 1962.

Fertilizer Can Boom

Looking ahead to a continued government feed grain program next year, fertilization of the corn acreage actually planted should boom for several reasons. More of the acreage will be concentrated on good land owned by farmers who fertilize as a matter of practice. Livestock men who feed their corn are faced by higher cash grain costs, and will be anxious to use enough fertilizer to grow more feed for themselves. And government payments on acreage reduction will bring farmers ready cash earlier in the fertilizer buying season. The traditional response of farmers to acreage reduction programs can be expected to work even stronger in 1962—to cause more fertilizer to be used on better-tended acres.

With the cotton crop estimated at 13,918,000 bales, as compared to last year's 14.3 million bales, but well above the 10-year average, another large-acreage crop has removed 278,522 tons of nitrogen from the soil, along with 139,261 tons of phosphoric acid and 92,818 tons of potash. More of this land is in the cotton area stretching from the Carolinas to Texas this year, since acreage was reduced mainly in the new cotton areas of California, Arizona and New Mexico. With cotton markets good and stored cotton supplies down, the cotton acreage for next year can hold up well—and the market for cotton fertilizer should be strong.

ESTIMATED PLANT FOOD REMOVAL BY MAJOR CROPS IN 1961
(Based on latest forecast production figures, August 1, 1961)

	Tons of N	Tons of P_2O_5	Tons of K_2O
CORN (3,352,037,000 bu.)	1,508,459	586,489	418,872
COTTON (13,918,000 bales)	278,522	139,261	92,818
WHEAT (1,204,096,000 bu.)	752,501	376,245	225,745

Plant food removed is calculated: on CORN for grain alone not including stover; on COTTON for lint and seed, not including stalks, leaves and burrs; on WHEAT for grain, not including straw.

Less Land—More Fertilizer

Wheat growers are now voting on the 1962 marketing proposal to cut wheat acreage 10% and to increase the support price from the present $1.79 to $2.00 a bushel. More fertilizer on fewer acres again! Sorghum and other feed grains will also be on a reduced acreage basis next year. But soybeans, sugar beets and certain other crops can be expected to call for more fertilizer tonnage and greater acreage in 1962.

(Continued on following page)

(Continued from preceding page)

The trend of the times, with or without government farm programs, is toward more efficient farming. This calls for greater output with less labor. More farmers each year are finding that it pays to use more fertilizer per acre, whether they farm fewer acres or more acres. And in spite of any one year's government programs, as the number of farms goes down, the survivors are farmers who use more fertilizer.

For example, look at our total production of all crops. At its peak in 1960, farm production was up to 122% of the 1944-49 average. Yet this all-time high production came from 320,823,000 harvested acres, compared to 350,000,000 acres we harvested just after World War II. This trend is possible only as we use more fertilizer to keep each acre producing more. As we look ahead to 1962, fertilizer is going to be even more important to prosperous farming.

Farm income is good this year, and land and labor costs will stay high or go higher, while the cost of fertilizer stays relatively low for its value. Government programs are limiting acreage of more crops, and are pumping extra money into agriculture. County agents, vocational agriculture teachers and other agricultural experts are preaching the gospel of more efficient farming on every acre left in production. All these trends favor heavier use of fertilizer in 1962.

Make premium grades with DURANA

It will pay you to use DURANA Nitrogen Solution to produce tobacco fertilizers, specialty fertilizers or other premium-grade fertilizers containing nitrate nitrogen, ammonia nitrogen and water-insoluble organic nitrogen.

DURANA supplies all these forms of nitrogen at low cost in one ammoniating solution containing a total of 37% nitrogen. Through the proper use of DURANA in manufacturing complete fertilizer, approximately 20% of the nitrogen from the solution is converted to water-insoluble inorganic nitrogen in the process of making the fertilizer.

DURANA also helps give fertilizers excellent mechanical condition and facilitates the production of granular-type fertilizers. For more information about DURANA, contact Nitrogen Division, Allied Chemical Corporation, 40 Rector Street, New York 6, N. Y.

TIPS ON DRYING

Drying granular material is similar to drying a bathing suit. You must persuade the water molecules to leave — permanently. A wet bathing suit in an off-ocean breeze and hot sun dries slowly, but a dry land breeze will remove moisture quite rapidly.

With wet granular material, part of the water is on or near the surface and part is trapped inside each granule. What happens if you heat the granules without much air circulation? The surface water evaporates until the surrounding air is nearly saturated, and then the water vapor in the air returns to the granules as fast as the remaining water departs. To break this stand-off we need a dry breeze, and we get it by putting more air over the material.

Stop a minute and consider that this surface water problem is distinct and separate from the problem of moisture trapped inside the granules. Removal of surface water requires relatively large quantities of air and moderate granule temperatures. Because evaporation of surface water tends to keep granules cool, it usually is not necessary to worry about overheating the material.

With counter-current drying, there often is so little air that some of the moisture picked up from warm material near the discharge of the drier may be deposited on cooler material farther back in the drier. Remember that every pound of water evaporated absorbs more than 1,000 B.T.U's. (This will cool 40 pounds of air about 100°F.) 1,000 cubic feet of saturated air at atmospheric pressure and 60°F. weighs about 75 pounds.

Once the surface water is gone from granular material through plenty of air circulation, we must free trapped moisture from inside the granules. How do we get this moisture through the surface? We start the water particles moving around by heating the granules. The particles try to migrate to the surface. Here we often have difficulty because many granular materials form a hard, nearly impervious coat when their surface is dried quickly. When this coat is not formed, drying proceeds without any special problems.

If a surface coat is formed, then more time and higher temperatures are needed to allow trapped moisture to escape. Or, a special technique is required.

In drying clay materials, formation of a hard coat is prevented by keeping enough moisture in the air to avoid hardening of the surface. At the same time, clay temperature must be raised so that moisture working its way to the surface can escape faster than moisture in the air can enter.

Design of modern driers includes equipment to regulate retention time, air quantity and velocity, inlet and exit air temperatures, inlet and exit moisture content of the material and of the air. Although operating conditions are quite flexible, there are limits to the performance that can be expected from any drier. For example, retention time can be increased by reducing revolutions per minute, *but* the material at the lower speed may not "shower" enough to make good contact with the heating air. An increase in air quantity above recommended levels may dry the material — and carry most of it out of the drier!

In this article, we have assumed that heat is being carried by the drying air and not by direct radiation. Driers that allow the material to "see" the source of heat may create enough radiant energy to overheat the granules. In such cases the drier manufacturer should be consulted to learn if a barrier of some type, such as a combustion chamber, can be interposed.

In general, remember to follow two rules: (1) be *sure* to have enough air in your drier to carry away surface water, and (2) allow enough time for trapped water in the granules to escape.

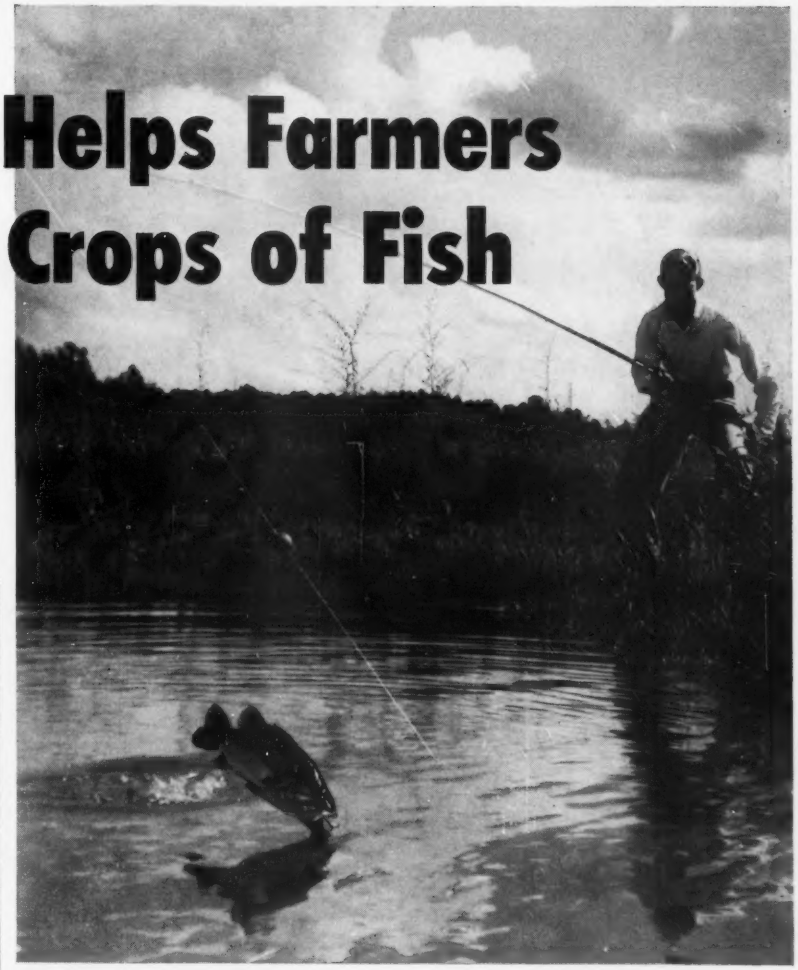
New U.S.D.A. Yearbook

You'll want the valuable new reference book for agricultural dealers and farmers, the new 1961 Yearbook of the U.S. Department of Agriculture, entitled "Seeds." In 591 pages packed with useful information, this volume covers the production, processing, certification, testing and marketing of all kinds of seed crops, including field crops, vegetables, flowers, forest trees and lawn grasses.

NOTE: The information furnished in this issue of the ARCADIAN News is obtained from studies and tests considered reliable; results, however, are not guaranteed.

Arcadian News for Fertilizer Manufacturers from Nitrogen Division, Allied Chemical

Fertilizer Helps Farmers Grow Big Crops of Fish



TONNAGE OPPORTUNITIES

Over half of our 21 million fishermen live in the country. As fishing in streams and lakes gets more crowded, farm ponds are growing in popularity for "sure-catch" fishing. Fertilizing ponds makes it easy to increase the yield of fish, and also helps keep out undesirable water weeds, which improves the value of ponds for fire control and water supply.

Farm ponds are being dug at a rapid rate with more than a million in the country now. Additional ponds are used for raising bait minnows. And in rice-growing areas, some land alternates between a crop of fish and a crop of rice. This all adds up to a huge fertilizer market.

More Fish Grow Faster

For good fishing, every acre of pond water needs 100 pounds of mixed fertilizer, 6 to 12 times a season, starting in early spring and ending in fall when the water gets cold. Some pond owners use fertilizer in winter to kill pond weeds. In Florida, ponds can be fertilized, and fished, every month of the year.

High fertility in pond water increases fish production by a chain reaction. The nitrogen, phosphate and potash supplied by commercial fertilizer grow vast numbers of microscopic plants. Insects and other tiny animals feed on these plants. In turn, they are eaten by small fish which are then gobbled up by bigger fish. It takes 4 to 5 pounds of insects for each pound of bluegills or bream. And 4 or 5 pounds of these small fish produces a pound of bass.

Bluegills and large-mouth bass are the recommended combination for stocking warm water ponds in which the surface temperature reaches 85°F. or more in summer. Rainbow and brook trout do well in spring-fed or other cold water ponds where the summer temperature seldom reaches 75°F. Other fish are sometimes used but the bass-bluegill combination provides the most fishing.

Fertilize in February

Nitrogen and phosphorus are the most important elements in a fish pond fertilizer. If the water is acid, lime should be spread. And 2-2-1 or 1-1-1 ratio fertilizer gives good results. Many of the experts suggest an 8-8-4 or 8-8-2 analysis. Spreading should start by early February in the Gulf States and Carolinas, and in early March farther north. Fertilizer added every 10 days soon produces billions of tiny plants which turn the water a brownish or greenish color.

Fertilizer is then added every month or so. An easy rule is to add fertilizer when you can see your hand clearly as you dip one arm to elbow depth in the pond. A more accurate measure is to nail a white disk on the end of a broom handle. Mark the stick at 12 inches and 18 inches above the disk. The pond is fertile enough when the disk goes out of sight at 12 inches deep in water. It's time to fertilize when you can still see the disk at 18 inches deep.

Deep pond edges and well-fertilized water keep most water weeds out of ponds. This reduces the mosquito nuisance and helps bass catch the small bluegills which might overpopulate a weedy pond. Pond weeds also use up oxygen which the fish need.

Commercial Fertilizer Best

Commercial fertilizer is best for fish ponds. Organic fertilizers favor large weeds and undesirable algae. Spreading the fertilizer is simple. It doesn't have to be spread in deep water, just scattered in shallow water along the pond edges. Wind and water currents mix it thoroughly.

For full information on fertilizing fish ponds, see your county agent, your soil conservation district agent or game warden. And write to the U. S. Department of Agriculture for Farmers' Bulletin 2094, "Managing Farm Fishponds for Bass and Bluegills."

Arcadian® NITROGEN SOLUTIONS

	CHEMICAL COMPOSITION %						PHYSICAL PROPERTIES		
	Total Nitrogen	Anhydrous Ammonia	Ammonium Nitrate	Urea	Water	Neutralizing Ammonia Per Unit of Total N (lbs.)	Approx. Sp. Grav. at 60°F	Approx. Vap. Press. at 104°F per Sq. In. Gauge	Approx. Temp. at Which Salt Begins to Crystallize °F
NITRANA®									
2	41.0	22.2	65.0	—	12.8	10.8	1.137	10	21
2M	44.0	23.8	69.8	—	6.4	10.8	1.147	18	15
3	41.0	26.3	55.5	—	18.2	12.8	1.079	17	-25
3M	44.0	28.0	60.0	—	12.0	12.7	1.083	25	-36
3MC	47.0	29.7	64.5	—	5.8	12.6	1.089	34	-30
4	37.0	16.6	66.8	—	16.6	8.9	1.184	1	56
4M	41.0	19.0	72.5	—	8.5	9.2	1.194	7	61
6	49.0	34.0	60.0	—	6.0	13.9	1.050	48	-52
7	45.0	25.3	69.2	—	5.5	11.2	1.134	22	1
URANA®									
6C	43.0	20.0	68.0	6.0	6.0	9.3	1.180	12	39
6M	44.0	22.0	66.0	6.0	6.0	10.0	1.158	17	14
10	44.4	24.5	56.0	10.0	9.5	11.0	1.114	22	-15
11	41.0	19.0	58.0	11.0	12.0	9.2	1.162	10	7
12	44.4	26.0	50.0	12.0	12.0	11.7	1.087	25	- 7
13	49.0	33.0	45.1	13.0	8.9	13.5	1.033	51	-17
DURANA®									
DURANA contains 8% formaldehyde.	37.0	13.3	53.4	15.9	9.4	7.2	1.235	0	36
U-A-S®									
A	45.4	36.8	—	32.5	30.7	16.2	0.932	57	16
B	45.3	30.6	—	43.1	26.3	13.5	0.978	48	46
Anhydrous Ammonia	82.2	99.9	—	—	—	24.3	0.618	211	-108

Other ARCADIAN® Products: URAN® and FERAN® Solutions • Ammonia Liquor • N-dure® A-N-L® • Ammonium Nitrate • UREA 45 • Nitrate of Soda • Sulphate of Ammonia

When you purchase your nitrogen requirements from Nitrogen Division, Allied Chemical, you have many different nitrogen solutions from which to select those best suited to your ammoniation methods and equipment. You are served by America's leading producer of the most complete line of nitrogen products on the market. You get formulation assistance and technical help on manufacturing problems from the Nitrogen Division technical service staff. You benefit from millions of tons of nitrogen experience and the enterprising research that originated and developed nitrogen solutions.

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Now Chief Kay-Two-Oh can take time out to enjoy the Harvest Moon as he listens to the Indian Love Call with his Sweet Sioux — because he knows that it takes more than a moon, or even a medicine man, to bring in a good harvest.

Proper fertilizers are recognized in today's scientific farming methods as essential to producing bumper crops. The Chief is proud that the only business of Pee-Cee-A is supplying potash for these fertilizers. It's gratifying to have helped in the production of a bountiful harvest.

It's also gratifying to the Chief to feel that Pee-Cee-A offers the best service possible. If his scouts can be of service to *you*, let him know!

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Canadian Sales Office:
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PCA Coarse 60% Muriate of Potash
PCA Granular 60% Muriate of Potash
Potassium Chloride (99.9% KCL min.)
Sulphate of Potash

SELLING THE POTENTIAL

by M. E. WIERENGA

In selling the potential, a look into the future is necessary. Much has been said and written about the continuing ability of people throughout the world to feed and clothe themselves. We are constantly being reminded of the fantastic rate of population increase and the impact of this exploding population on the amount of land available for crop production. The present U. S. population of 180 million people is expected to increase to at least 275 million by the turn of the century, and the present 2.8 acres of arable land per person will have been reduced to less than 1.6 acres.

In the U. S., phenomenal progress in scientific research has more than kept pace with the extraordinary growth of population. Our increasingly efficient agriculture has produced food and fiber crops in great variety and abundance. Among the technological advances available to improve production through increasingly efficient use of land, possibly none has contributed or will contribute more in the future than fertilizer. Without fertilizer, modern farming methods would no longer be possible on millions of acres of land now farmed intensively. Without adequate use of fertilizer, the demands for future intensification of farming cannot be met. Today's farmer faces a task that he cannot meet without the help of appropriate fertilizers and knowledge of how to use them efficiently. Tomorrow's farmer will be required to produce even greater yields on fewer acres. He must depend, even more than in the past, on fertilizers and upon those who manufacture and sell them as partners in feeding and clothing the world's population.

The fertilizer industry has products which perform miracles in raising production and lowering unit cost on the farm. Wise use of fertilizer generally returns three or more dollars on every dollar invested. In many instances, the return runs to $7.00 per dollar spent. Few, if any, other farm production tools can boast such a handsome return.

The fertilizer industry has every reason to be proud of its products, or at least what its products have accomplished. However, the fertilizer industry cannot be proud of the weak, timid job it has done in merchandising these products. Probably no other industry has used so little imagination in selling.

Growers are interested in results—not fertilizer. Yet, the fertilizer industry has consistently based its appeal on price per pound or per ton of plant food. This has led growers to the practice of continuous shopping for better deals, and the fertilizer industry has been willing to condone and, in some cases, actually encourage it.

The lack of imagination by industry and the willingness to meet any price quotation has, no doubt, often contributed to an erroneous belief, among farmers, that the profits in fertilizer are large.

Why doesn't the fertilizer industry employ some sales imagination? Perhaps it is because the management is generally in the hands of production-minded men. Perhaps there are not enough specialists in advertising and marketing. Or that they have too little say so in company policy.

Too many of the members of our industry leave the selling of their products to a third party—such as experiment stations, universities, colleges, and trade associations—the third party many times being primarily interested in saving farmers money, not making money. As a result, they recommend that farmers buy as cheaply as possible, and this further d e g r a d e s merchandising techniques.

The grower's opportunity to make money, by being certain he purchases the right fertilizer, uses it in the proper amount, applies it correctly, and at the right time, is far greater than any possible saving he may derive from "chiselling a few dollars on the price." It should take very little imagination or time to understand that. There is far more romance in making money than in saving it.

Mr. Wierenga is vice president and manager of marketing for California Chemical Company, Ortho Division. This presentation was made at the Southwest Fertilizer Conference in Galveston, Texas in July.

There are signs of encouragement: a few companies are starting to sell results—make money for growers, not save money. Some companies are training a sales force to use imagination and sell results — not products or prices. We hope this trend will speed up.

Now, how do we do it in Ortho? Well, first we had to have a plan; our entire fertilizer merchandising technique is built around "selling an Ortho program" which is primarily based on the "break-the-yield barrier" principle.

The slogan "beaten paths for beaten men" does not apply to our sales organization. On the contrary, imagination and initiative are the two words descriptive of our sales representatives and agronomists who are not satisfied with normal day-to-day progress. Results from our widely known "break-the-yield barrier" contest demonstrates that a combination of imagination and action can do great things in achieving spectacular results.

The rules of the contest are very simple. Really, there are no rules, except that measured yields must come from at least one acre. Variety, planting techniques, culture and fertilization practices are all left to the imagination of our field agronomists and the grower. Field goals are established for two series of crops having wide adaptation. The crops are classified as A and B crops. In the A group, both yield and quality are considered. In the B group, only yield is considered.

We look beyond the present horizon. We know that we can shorten time by using imagination and employing practices whether or not they appear unorthodox in terms of present farming methods.

And now, what do we do with all this information? How does it help to sell the potential? It's very simple. First, we use the information in selling the agronomic know-how and the Ortho program; and secondly, the break-the-yield barrier serves as a contest between our sales districts.

And now, a part of the plan which I mentioned previously and important to the selling potential, is our

fertilizer salesmen's handbook. It is not intended to be exhaustive in its contents nor in its treatment of all the requirements for successful selling. It is a guide to help each Ortho salesman to become more successful. It contains some of the basic information as well as examples of proven selling techniques.

The contents are as follows — a section on product description. Product knowledge is the first essential in salesmanship. The two musts of any good salesman are confidence and enthusiasm. The successful professional salesman is a confident individual, creating enthusiasm and the secret in developing this confidence is vested in product knowledge.

To be confident, a salesman must believe in himself and the product he sells. He must know that the work he is doing and the industry he represents are vital. He knows that he can render a service to his customers because of his complete knowledge of his products and their uses.

A most important section is on knowing the territory. Probably no other single thing contributes more to efficient solicitation of business than a thorough knowledge and understanding of the sales area. We require each salesman to have a map of the sales area designating the agricultural areas, the Ortho resellers, the competitor's resellers, the crops and acres, the average yield, the average fertilizer investment, and use period. We have a complete evaluation of fertilizer competition shown on a fertilizer competition chart. Each man has complete information on his present and potential customers. The name, location, type, size, his present supplier, storage facilities, credit ratings, paying habits and his potential.

Based on the break-the-yield barrier information, we in Ortho have developed a selling concept for marketing fertilizer called "Ortho program selling." We have a complete section devoted to Ortho program selling, how it works and how to use the Ortho fertilizer program form.

There is a complete section on "know your presentation" with several sound examples of presentations, both at dealer and grower level.

A section on the break-the-barrier contest explains in detail how the program will telescope many years of so-called normal progress into a short period of time.

There is a section on contracts and agreements, also.

Another most important section is on advertising and sales promotion.

A section on credit objectives and administration is an integral part of the manual because our sales representatives are guided by that old saying, "nothing is sold until it is paid for." Our sales representatives are responsible for credit and collection.

We in Ortho believe that to sell the potential, we must know the facts; therefore, we make certain that every Ortho salesman knows the fertilizer salesman handbook both forward and backward.

And now, all the fertilizer handbooks and all the agronomy manuals in the world will not help sell the potential unless you have the right people, and the right people in the right frame of mind to sell the program.

You must have a well-trained field force. In Ortho, we have found it useful to have a continual sales training course. The sales training should be designed to fit into the technical background of the sales people. We have found that tech-

Here is the pattern of a dynamic fertilizer sales program, outlined by the top sales executive of an organization which has added new chapters to the history of fertilizer merchandising and production during the past decade.

nical trained salesmen without the basic sales fundamentals have problems in directing their knowledge in the right direction when working with dealers and growers.

I would like to add one very important word: it's getting to be a very serious problem in selecting and hiring good sales people in our field. The art of a real professional salesman is rapidly becoming a large part of our economy. I would like to impress on you as businessmen, and on the representatives of the individual colleges, the necessity of continually selling the profession of salesmanship. Selling today is a very interesting, exciting, challenging, and rewarding occupation, even a way of life. It requires as much training and hard work to prepare a man for the rewarding life of a salesman as it does most any other profession.

Let's assume now that one of your older men has become so proficient that in order to realize the potential, you must divide his territory and hire a new man. The first thing that we should do is to prepare a job description of the job for the particular sales area. We should sit down and write out in detail just what we expect this man to do after he is hired. The actual job of writing out the job description will give us a clue as to the type man we wish to hire to fill the job, and it will also aid us when we go to colleges or other sources to hire the man we are looking for.

Our evaluation of the applicant consists of an interview by what we call a patterned interview. A patterned interview lists the questions that we desire to ask the applicants in the logical order and it keeps us from missing any questions which we might overlook during that interview. After each question, we write the applicant's answer down so that we can evaluate it at a later date. After the patterned interview, we have two other phases which we go through: namely, a personality inventory and aptitude classification test, and a mental alertness test.

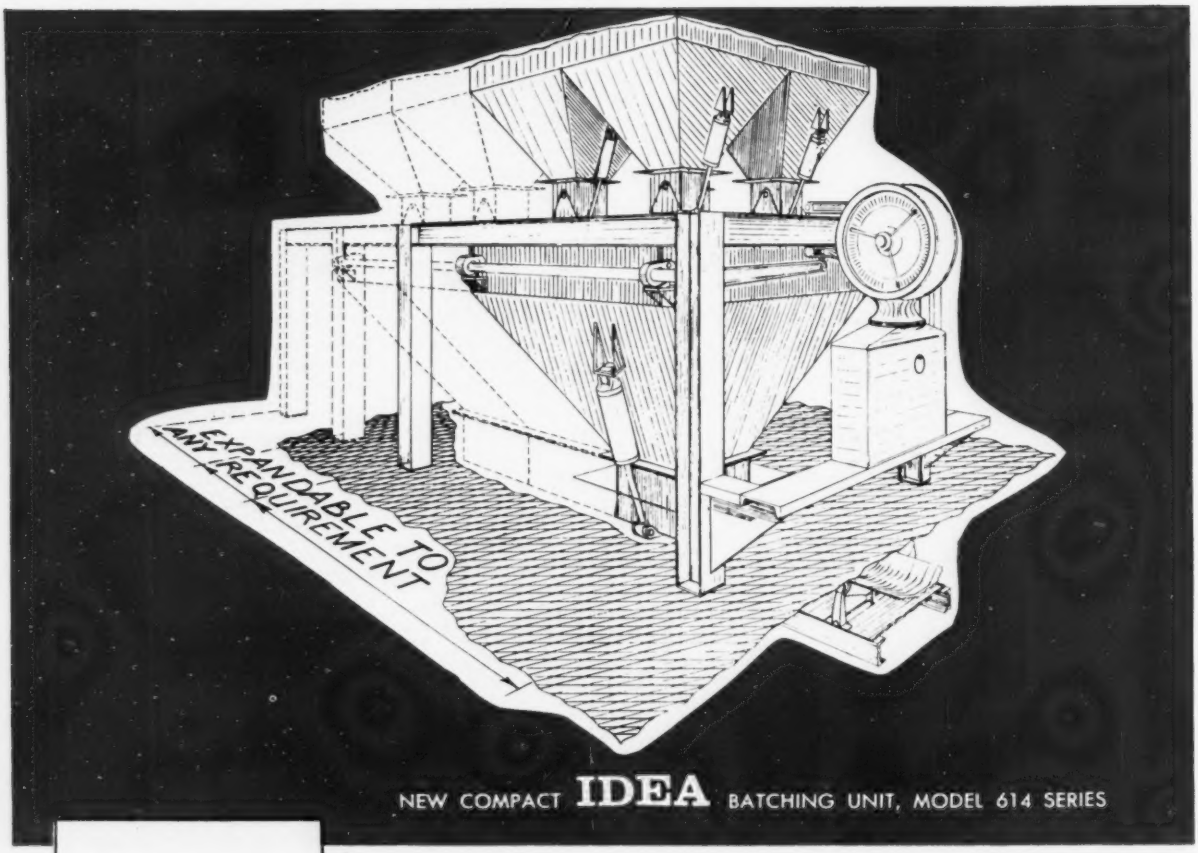
We know from previous experience, from tests given to our successful men within our company, the type of personality which we desire. The aptitude test shows the interest of the applicant. The mental alertness test is just what it says. It tells you whether or not the man can think fast enough on his feet to be in a direct line of fire in the field as a salesman.

We feel that regardless of all the devices used, somewhere along the line a decision with the exercise of judgment has to be made in determining whether to hire the applicant or not. Our point is that the judgment exercised can be no better than the information on which it was based and, therefore, our thinking on selection is that it is imperative that reliable, factual information be obtained and that a decision be made on that basis rather than on feelings, impressions, or emotions.

Now that we have selected our man and if he is to sell his potential, our job is to thoroughly train him. In training the employee must have two things: a thorough understanding of the job to be performed, and the intelligence and will to do

(*continued on page* 44)

Common-Sense Application of The Extraordinary



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NPFI Survey of

IN-PLANT SHRINKAGE

by VINCENT SAUCHELLI
Chemical Consultant
National Plant Food Institute

Historical

The losses of plant food in processing fertilizers are being recognized as an important factor in the profitable operation of the fertilizer plant. Until about 15 years ago, shrinkage losses in manufacturing were comparatively small. Generally, the practice of the industry was to figure a 2 percent shrinkage as adequate to cover all losses in the plant. Since then, with the upgrading in the plant food content of fertilizers and the new technology involving ammoniation and granulation, the process losses in plant food have grown into a major problem.

In August 1958 National Plant Food Institute was asked by several of its members to study this troublesome problem and bring the findings to the attention of the membership. It was pointed out that any data on industry performance in measuring and reducing the shrinkage would be helpful to the industry, at least as a means of measuring individual company data as being above or below the general average. Believing this would be a real service to the industry, the Institute proceeded to organize a Task Force to study the problem, prepare a questionnaire and assemble and tabulate the answers.

The Task Force on In-Plant Shrinkage comprised the following: Dale C. Kieffer, Smith-Douglass Co.; J. E. Reynolds, Davison Chemical Co., Division W. R. Grace & Co.; M. D. Sanders, Swift & Co.; Rodger C. Smith, Eastern States Farmers' Exchange; Albert Spillman, Fertilizer Manufacturing Cooperative, Inc.; Philip E. Stone, Virginia-Carolina Chemical Corp.; Vincent Sauchelli (N.P.F.I.), chairman.

The Task Force met in Washington on April 30, 1959. The subject was thoroughly discussed and the consensus was that a careful study of the losses was warranted. They recommended that a suitable questionnaire be prepared as the first or exploratory phase of the study. The replies would suggest the scope of the second phase. In order to assure cooperation it was emphasized all releases and references to the information in the questionnaire would be by code and never by company name.

For the purpose of the questionnaire, shrinkage in fertilizer plants was to be divided into *intentional* and *unintentional losses.*

The intentional losses were divided into 4 categories: (1) Formulated free ammonia nitrogen loss during mixing operation. (2) Plant food overage formulated as safeguard against deficiencies. (3) Weight overage at the time of packaging as a safeguard against short weights. (4) Other intentional losses.

The unintentional losses were divided into 6 groups: (1) Nitrogen loss as ammonia and fumes while mixing. (2) Dust losses while mixing. (3) Leakage in liquid lines. (4) Overweight at the time of packaging. (5) Moisture losses unaccounted for in formulation. (6) Other.

The questionnaire was mailed on July 8, 1959 to members of the Institute and to a large number of nonmembers in order to make the study as comprehensive as possible.

About 45 companies replied to the questionnaire. Many of the replies represented averages from multiplants operated by the one company. The Task Force meeting on December 18, 1959 questioned the accuracy of some of the data: some had calculated losses on a percentage basis as requested; others, on a unit basis, Where doubt existed, we communicated with the company involved and had it check whether its replies were on the correct basis.

The first phase of the study was merely exploratory as previously mentioned. The second phase was to comprise a study of the methods of sampling fertilizers in the plant, a study of the accuracy of the various measuring devices used in most plants to control the flow of materials into mixers; and finally a serious attempt to identify more particularly, within the process, where losses occur and why. To secure this additional information would necessitate the organization of a series of experiments in a selected, representative group of plants. The Task Force did not pursue this second phase because it felt it was not within the assigned scope of its activities. Approval from the membership would have to be obtained for this additional study.

The Replies

Summaries of the replies to the questionnaire are shown in Tables I and II on page 31. One set refers to losses in the production of granulated or semi-granular fertilizers; the other, to non-granulated or so-called pulverized fertilizers.

COMMENTS

DALE C. KIEFFER
Fertilizer Production Manager
Smith-Douglass Co., Inc.

The TVA type continuous ammoniator is extensively used in granulating plants, however, it apparently has not been incorporated in many production units turning out only pulverized fertilizer. In granular plants it is used both as an ammoniator and a granulator. Since nitrogen losses are greatest in plants producing granular fertilizers, it could be reasoned that the old batch mixers are still the most efficient. This is hardly a fair assumption because more liquid, particularly anhydrous ammonia, is introduced along with acids in the granular plants to produce heat, and to aid in granulation. The conditions most favorable to granulation are not always ideal for best ammonia absorption. In general, this possibility is the most important reason for the difference of about 2.5% more nitrogen loss in the granular plants as compared to the batch mixing operations.

Under similar conditions the TVA type ammoniator undoubtedly would compare favorably — and possibly show a slightly higher efficiency — than the batch mixer.

Apparently, the operators of granulation units anticipate higher nitrogen losses because most companies reported allowances in their formulas which, on the average, amounted to about 3.4% of the total nitro-

gen guarantee as an anticipated loss. This leaves only 1.5% nitrogen loss that is unintentional and, to a large measure, unexplained.

Based on the reports of companies co-operating in the In-Plant Shrinkage survey it would seem that dust losses contributed only a minor part to the over-all material loss in granular plants as compared to non-granular operations. The basis for this conclusion is found in the figures pertaining to phosphates and potash. Both of these plant foods must be lost from the dryers, ammoniators and coolers as dust. In non-granular plants the over-all loss in phosphate was 2.74% and potash was 2.15%. In the granular plants phosphate losses amounted to 2.85% and potash losses 2.54%. From this, it is quite apparent that the major problem in the granular plant centers around nitrogen losses—largely as ammonia, smoke and fumes.

I have been quoting averages and it should be emphasized that there is a great deal of variation between plants and companies, particularly with respect to nitrogen recovery. Some of these differences may be due to variations in over-all efficiency of operation, but probably more of it is due to differences in formulating policies, *i.e.* the use of higher percentages of anhydrous ammonia versus solutions and solids —and higher ammoniation rates on the phosphatic materials.

It must be expected that the phosphate losses will exceed the potash losses to some extent because, in addition to handling and dust loss on phosphates, there is the additional possibility of conversion of available P_2O_5 to citrate insoluble forms. Apparently, there is slightly more reversion in the plants producing pulverized fertilizer than in the granular plants, but the difference is relatively insignificant. About .3% to .5% of the P_2O_5 loss is due to reversion.

With the exception of nitrogen losses at the ammoniator, substantially all of the shrinkage at the various points of manufacture is in the magnitude of a fraction of a percent. However, these small fractions can add up to a significant cost.

Based on the information that has been submitted to the Committee, plants producing granular fertilizers lose from 4% to 6% of the nitrogen; 2 to 4% of the phosphate, and 2 to 3½% of the potash input; whereas, the plants producing non-granular fertilizer lose from 1½ to 3% of their nitrogen; 2 to 3% phosphate and 2 to 3% of the potash input.

Actually, granulation in this country is still comparatively new to most fertilizer manufacturers, and it can be expected that the more complicated a process becomes the more opportunity for shrinkage... However, there is room for improvement, particularly in nitrogen recovery in the granular plants. Since the fertilizer industry is highly competitive, and no company can afford to overlook losses in any magnitude, the industry will show an over-all improvement.

RICHARD G. POWELL
Technical Service Manager
Agricultural Chemicals Division
International Minerals & Chemical Corp.

Some obvious sources of loss: (1) Materials unloaded either to storage or to operation. (2) Materials weighed and/or metered to operation. (3) Materials lost in processing.

(*Continued on page 59*)

In-Plant Shrinkage Reports Summary

Table 1: Pulverized Fertilizers

Company	Total Intentional			Total Nonintentional			Total Loss for Year		
	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O
B	--	--	--	0.85	1.68	5.49	0.85	1.68	0.85
C	5.0	--	--	--	--	--	4.0	3.10	2.2
M	2.54	1.25	0.52	0.99	1.53	1.89	3.53	2.78	2.41
N	1.0	1.0	0.0	0.1	0.9	0.9	1.1	1.9	1.9
Q	1.5	0.5	0.5	--	--	--	1.5	0.5	0.5
Q	--	--	--	--	--	--	1.8%	--	1.8
Q	--	--	--	--	--	--	6.8%	--	0.1
U	0.2	0.5	0.2	--	--	--	0.2	0.5	0.2
V	0.013	0.0	0.012	--	--	--	0.013	0.0	0.012
Y	--	--	--	4.0	4.0	4.0	4.0	4.0	4.0
Z	--	--	--	--	--	--	4.06	3.31	0.53
A2	1.0	4.0	3.0	1.0	4.0	1.0	2.0	8.0	4.0
A3	2.5	3.0	4.0	--	--	--	2.5	3.0	4.0
A6	0.08	0.08	0.08	--	--	--	4.21	1.46	4.23
A9	--	--	--	--	--	--	0.99	2.70	3.89
A10	1.0	2.25	1.0	1.8	1.7	2.9	2.8	3.95	3.9
A13	1.25	2.75	0.75	1.1	1.1	0.6	2.35	3.85	1.35
A14	0.0	0.5	0.0	0.4	2.5	2.2	0.4	3.0	2.2
A16	--	--	--	--	--	--	1.27	0.10	0.57

Table 2: Granular Fertilizers

Company	Total Intentional			Total Nonintentional			Total Loss for Year		
	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O
A	6.0	4.0	4.0	--	--	--	6.0	4.0	4.0
C	3.5	2.5	2.5	--	--	--	3.5	2.5	2.5
D	2.81	0.14	0.01	5.84	3.02	3.8	8.65	3.16	3.81
D*	2.0	0.01	0.0	2.69	0.98	0.65	4.69	0.99	0.65
E	5.85	2.85	3.85	0.045	0.055	0.05	5.90	2.90	3.90
F	2.5	1.0	0.25	4.85	1.5	2.0	7.35	2.5	2.25
H	0.5	2.0	1.0	2.0	1.0	1.0	2.5	3.0	2.0
I	3.0	6.0	3.0	0.75	0.5	1.0	3.75	6.5	4.0
K	3.2	1.4	1.6	1.1	0.4	0.0	4.3	1.8	1.5
K*	1.5	1.6	1.6	0.0	0.8	0.0	1.5	2.4	1.6
L*	0.14	0.11	--	3.92	2.92	2.55	4.06	3.03	2.55
O	0.25	0.25	0.25	0.5	0.4	0.3	0.70	0.65	0.55
P	3.5	2.50	2.5	1.25	--	--	4.75	2.50	2.50
S	5.0	0.05	--	8.0	2.0	2.0	13.0	2.05	2.0
T	5.0	2.5	2.5	--	--	--	5.0	2.5	2.5
X	5.0	2.0	1.0	2.5	1.5	1.5	7.5	3.5	2.5
A4*	--	--	--	1.59	1.37	1.89	1.59	1.37	1.89
A7	3.43	1.78	2.12	2.20	2.12	1.95	5.63	3.90	4.07
A8a	4.0	2.25	2.25	1.0	0.75	0.75	5.0	3.0	3.0
A8b	5.25	2.25	2.25	1.75	1.75	1.75	7.0	4.0	4.0
A8c	6.25	2.25	2.25	2.75	0.25	0.25	9.0	2.0	2.0
A11	3.0	2.0	2.0	3.3	2.53	0.26	6.3	4.53	2.26
A12	2.0	2.0	2.0	0.47	0.40	0.15	2.47	2.4	2.15
A15	--	--	--	--	--	--	6.67	3.17	3.51
A16	--	--	--	--	--	--	5.25	2.58	2.03

* Indicates semi-granular.

CALIFORNIA

Western Bat Guano Corp., Los Angeles County, organized to sell guano by Edgar A. Nathan, with $200,000 in $10 par shares. Directors: Jesse R. Navarro; Albert Lipsitz; William R. Flowers.

* * *

Valley Nitrogen Producers has started construction of a 7,000 ton low-pressure refrigerated anhydrous ammonia storage tank at its Helm plant.

Carl H. Haas, president and general manager of the fertilizer cooperative, said the $400,000 tank is scheduled for completion in mid October.

The 80 foot tall structure will be adjacent to the present ball shaped anhydrous ammonia tank which is 70 feet tall.

Present output a day of the ammonia plant is 180 tons, but present storage is only 2,500 tons. The new tank will add storage for another 40 days' output of ammonia. This will be supplemented by the aqua ammonia storage tanks and the dry bulk storage buildings.

Contractor for the new installation is the Chicago Bridge and Iron.

FLORIDA

International Minerals & Chemical have announced that the Pensacola plant will suspend production, but will continue sales activities. Plant food will be produced by their affiliate, People's Fertilizer, Foley, Alabama.

* * *

Swift & Co. have begun construction of their new contact sulphuric plant at Agricola, vice-president C. T. Prindeville has announced. The new unit will supplement two existing acid plants, tripling the present capacity. The Leonard Construction Company, Chicago, has the contract for engineering, procurement and construction of a Leonard-Monsanto unit. The design includes innovations providing operating flexibility and high efficiency. It is expected the new facility will be completed in April, 1962.

Output of the new acid plant will be used to treat rock phosphate mined at the site. Resulting phosphoric acid will be used in production of the company's various plant foods. Phosphoric acid also will be used in the production of concentrated phosphate compounds. These high concentrate products also sold to other processors.

"Construction of this new sulfuric acid plant is another step in Swift's long-range program for expanding its agricultural chemical business," Mr. Prindeville declared. "In the next two years, we will be associated in projects with a total investment of about $30,000,000.

"Our decision to move ahead with these projects is based on the growing demand for agricultural chemicals. Swift & Company is already an important factor in this field—in mixing of plant foods and pesticides to meet specific agricultural needs and consumer product requirements; mining and processing phosphate rock, and production of phosphoric acid and related products."

* * *

Delp's Ammonia Service, Monticello, has installed a new 55-foot, all-aluminum storage tank with a 22,000 gallon capacity for the storage of liquid fertilizer.

GEORGIA

Mutual Fertilizer Co., Savannah, were robbed of some four thousand pounds of lead sulphate, and lead pipe from acid vats. Three lead plugs, weighing some 75 pounds were also missing.

* * *

Southern Fertilizer and Chemical Co., Savannah, suffered a fire recently—believed to have been started by a spark from a welding torch. Damage was minor.

ILLINOIS

National Phosphate is planning a multi-million dollar 20 hourly ton granular diammonium phosphate plant in Marseilles, producing from wet process phosphoric acid and anhydrous ammonia. The D. M. Weatherly Company has the contract to design and build the new facilities.

The expanded facilities are expected to be in operation by the middle of next year, according to Erol Beker who founded the company less than two years ago and completed the wet process phosphoric acid plant there early this year.

* * *

Aylco Chemical, Sullivan, last month reached its 1961 season goal of 22 total retail outlets in 20 central Illinois counties,—a gain of 14,—with a marked increase in soil testing. Number of samples taken and tested over 1961's first six months covers 50,000 acres. The company's new, broader services for farmers includes, besides analyzing soil samples, providing "home area" based supplies of liquid fertilizer for faster delivery, and making available tailor-made plant food if tests disclose its need.

Equipment at each outlet has been supplemented now to include four tanks, two of 10,000 gallons capacity and two of 6,000 gallons each, two to four spreader trucks, and five applicators as well as such additional farm chemicals as insecticides and herbicides.

Further, localized farm help has been provided by "spotting" operators of mechanical equipment who reside in each of the quadrants of the circles of 10 miles diameter surrounding the company's 22 community retail outlets.

IOWA

Swift & Company and **Skelly Oil Company** August 21 announced plans to construct and operate a nitrogen products plant in the middlewest.

They have formed an Iowa corporation to construct a plant at a cost in excess of $10,000,000. The new corporation will be known as the Hawkeye Chemical Company.

The joint announcement by P. M. Jarvis, president of Swift, and Don H. Miller, Skelly president, said the corporation will be owned on a 50-50 basis by the two companies.

Present plans call for a plant to be located on land now under option about one mile southwest of the city limits of Clinton, Ia.

Capacity at the plant will be about 300 tons daily, with ammonia, nitric acid, nitrate solution, ammonium nitrate, urea and nitrogen solutions as the principal products.

It is expected the plan will employ about 150 persons.

Vorhes Chemical Corp., Charles City, has purchased the Clarksville Canning Co. property at Clarksville for a distribution center. Plans call for future conversion into a processing plant.

MISSISSIPPI

Dixie Fertilizer Co., Inc., Meridian, with assets around 3½ times liabilities, has filed a bankruptcy petition "in order that the company may have sufficient time in which to collect money owed it, and make arrangements for additional capital." Operation is continuing under a trustee, L. L. McAllister of Meridian. Dixie was chartered in November, 1958, but did not begin operations until this year.

MISSOURI

Four Valleys Plant Food Company, Sheridan, has begun construction of a modern bulk blending plant, which will represent an investment of $100,000 when completed. The building is to be 84 by 48 feet, of tongue and groove siding, concrete floor and white asphalt roof.

It will have a capacity of 1,200 tons of material, with automatic equipment which will unload railroad cars at the rate of 40 tons per hour.

The plant will offer fertilizer materials for direct application or mixed to fit soil test specifications.

Backers include Earl Langfitt, Reece Streeter and Noble Aldrich. Stockholders are farmers in the adjacent area, and stock is still available.

UTAH

San Jacinto Petroleum Corp. of New York has farmed out to Utah Potash Co. of Salt Lake development of some 30,000 acres of potash land near Moab. This land is close by the Seven Mile anticline being developed by Texas Gulf Sulphur.

* * *

Continental Oil, Houston, is also operating in the same area, with potash rights to an 8,000 acre tract near that controlled by San Jacinto.

CANADA

United States Borax & Chemical Corporation and **Homestake Mining Company** have entered into a joint venture to complete studies relating to possible large scale potash production in Saskatchewan, where U. S. Borax has been investigating permits held since 1957, a joint announcement by the two companies disclosed.

U. S. Borax, the pioneer American producer of potash at Carlsbad, New Mexico, is today the second largest producer of potash in the USA. Homestake Mining has had extensive experience in gold and uranium mining.

If the completed studies indicate the technical and economic feasibility of a Canadian potash operation, the two companies may participate equally in any company formed for such purpose. One or more additional associates may also be invited to participate in the future.

* * *

Standard Chemical Limited, a jointly owned subsidiary of Armour and Company and Pittsburgh Plate Glass Company has already drilled several test wells, and at the end of May had two drilling rigs on location in Saskatchewan.

The latest venture is a million-dollar exploratory program to determine whether a "solution mining" technique will be successful in exploiting a deep deposit of potash at Belle Plaine, between Regina and Moose Jaw.

The test drilling of shallow structure holes and a pilot plant, will decide whether the company will go ahead with full scale development. The investment in a commercial operation would run into eight figures.

The greatest obstacle is the extreme depth. The two other major deposits in Saskatchewan are considered relatively deep at around 3,100 feet. The Belle Plaine strata has been logged at around 5,100 feet. Thus the drilling will be fairly expensive.

The production method to be used is similar to the brine technique by which salt is brought to the surface. Water is pumped down one shaft into the formation. This dissolves the potash, which is then pumped up another shaft to the surface. A surface processing plant precipitates the potash crystals out of the solution. It would be the first such application in potash recovery which has been commercially operated.

* * *

International Minerals & Chemical has announced plans for a $10 million expansion of production facilities at the potash mine project of its Canadian subsidiary.

Company officials said the expansion, which would boost output potential from 420,000 tons to 1,200,000 tons of potash product annually, is being planned to meet expected sales demand. The expenditures would bring total plant investment close to $40 million upon completion.

Initial production from the shaft at Esterhazy, Saskatchewan, is expected by early summer of 1962 and refining facilities already completed will handle 420,000 tons of product annually. Engineering and design on the additional facilities will get under way immediately. Operation at the 1.2 million-ton rate would begin in January of 1963. The shaft at Esterhazy will open up what is recognized as the world's largest known deposit of high grade potash ore.

Market studies by IMC indicate the Canadian potash mine will come into production at a time when demand for North American agricultural potash will be rising at an average annual rate of 6.5 percent.

* * *

Cyanamid of Canada Limited will start construction of eastern Canada's first diammonium phosphate plant during the next few weeks, it is announced by B. F. Bowman, president. The new manufacturing facility, to cost more than $2,000,000 in its first phase, he says, will be built on the site of the company's Welland Plant near Niagara Falls, Ont. and will include facilities for the production of granular triple superphosphate.

Cyanamid has imported triple superphosphate from the United States for sale in Canada. Diammonium phosphate, currently manufactured only in Western Canada, will now be produced at the company's new facility where ammonia is already manufactured.

* * *

Northwest Company, Ltd., Calgary, a wholly owned subsidiary of Imperial Oil, has been licensed to carry out exploratory work in the Saskatchewan potash areas of Findlater and Regina Beach-Lumsden.

* * *

Rocky Mountain Chemicals, Fort Saskatchewan, is hunting finances for a soda ash project which will, as an added product produce ammonium chloride. The Solvay process, modified as it is being used in Japan, would use salt from Alberta as a raw material. The company hopes to be able to compete with the Japanese on the low-cost fertilizer.

(*Continued on page* 35)

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Canadian Industries Limited has installed new loading facilities in its Ontario fertilizer plant. The new equipment will enable the plant to handle 30 hourly tons of bulk fertilizer. The company is testing a number of bulk spreaders, and as a means of encouraging the use of bulk fertilizers, is doing a good deal of demonstration work with farmers.

Heart of the new loading system is a highly accurate scale that automatically weighs each dump before it is dropped into a truck. This enables the truck to drive away immediately after being filled.

The system works in the following way: A front-end loader shovel scoops up a load from the bin containing the fertilizer mixture requested by the customer and drops it through a grating in the cement floor of the plant. A conveyor and elevator carry the fertilizer up to the screens and thence to a wooden hopper on the second floor.

From this hopper, an Archimedes screw—which can be reversed or stopped by an operator at a control panel—feeds fertilizer to the weigh machine. When the weight is right (500 pounds) the dump is dropped into the waiting truck. A counter on the control panel records the number of drops and by this means the operator measures out the total load for the truck.

FORMOSA

Mobil Chemical Investment and **Allied Chemical** are expected to reach agreement with Chinese Petroleum Corp. for the establishment of a $22,000,000 fertilizer plant with a capacity of 100,000 annual tons. This would be the largest industrial plant in Formosa, and would be in production in about two years.

Mobil and Allied are expected to invest $7,500,000 each, with Chinese Petroleum providing $7,000,000.

FRANCE

Ammonia S. A. has just awarded the Societe Belge de L'Azote et des Produits Chimiques du Marly, Liege, Belgium, with the engineering of a plant for the production of granulated ammonium nitrate.

This unit, applying the S.B.A. process will be incorporated in the Wingles plant (Pas-de-Calais) of Ammonia S. A. and will have a capacity of 150 daily tons of ammonium nitrate.

It will be recalled that this process for production of ammonium nitrate has been developed by S.B.A. and operated in the S.B.A. plants as well as in numerous production units that the latter has realized for foreign companies.

GREECE

Freeport Sulphur has an approved application for construction in the Pireaus Port a $25,000,000 plant to produce superphosphates, sulphoammonium phosphate and other fertilizer material for completion in 30 months.

INDIA

Juggilal Kamlapat, Cotton Spinning and Weaving Mills, Kanpur, Upper Pradesh, is soliciting quotations on plant and machinery to produce superphosphate and sulphuric acid.

ISRAEL

Dead Sea Works, reported here last month as having been awarded a $25,000,000 World Bank loan, and planning to up production of potash from present 150,000 annual tons to 600,000,—are building so production can readily be moved upward again to 900,000 annual tons.

INDONESIA

Indonesia has submitted to the Japanese Industrial Association a plan for setting up an artificial fertilizer factory, with a capacity of 50,000 annual tons of phosphate. Later on the plant will be expanded to produce 160,000 annual tons of fertilizers. The first stage of construction will cost about $2,800,000, financed with Japanese credits.

At present Indonesia is importing 800,000 tons of artificial fertilizer each year.

IRAQ

The Government of Iraq will reportedly build a plant to produce 116,000 tons annually of ammonium sulphate near Basra. The plant, which is to be based on Russian designs, also will make 50,000 tons per year of ammonium nitrate and 20,000 tons per year of sulphuric acid.

When the expansion program is completed, in 1965, the company's export of potash and other chemicals will rank next to citrus as Israel's most important source of foreign exchange earnings.

The program will cost the equivalent of approximately $70 million. About half this amount will be provided by the company from the proceeds of a new share issue and from retained earnings, and the remainder will come from a $25-million World Bank loan and other borrowings.

The Dead Sea Works, Ltd. (Mifalei Yam Hamelah B.M.), was formed in 1952 by the Government of Israel, taking over the assets in Israel of the Palestine Potash Company, Ltd. The majority of the company ownership will be put in the hands of private investors as a result of the financial arrangements for the expansion scheme.

PORTUGAL

Nitratos de Portugal has inaugurated a 300 m. escudo plant scheduled to produce 100,000 annual tons of 20.5% N material, 15,000 of calcium nitrates and 10,000 of nutric acid.

This plant is linked by pipelines to the new plant of Petroquimica, which—making ammonia and hydrogen went into operation in July. Over the 12 mile duct, Nitratos will receive ammonia from Petroquimica.

Petroquimica is affiliated with SACOR, the Portugal petrol refining concern.

TOGO

Compagnie Togolaise des Mines du Benin has begun exploitation of extensive phosphate rock deposits in Togo with completion of washing and loading facilities. A monthly output of 3,000 tons of phosphate concentrate is planned from the deposit which is estimated to total 50 million tons. The developers are talking of yearly shipments of the order of 750,000 tons within two years.

TRINIDAD

A new ammonium sulphate plant is now in full operation at Point Lisas, near Port of Spain. The plant, which is designed to produce 85,000 tons of ammonium sulphate annually, derives its ammonia from petroleum and uses sulphuric acid obtained from the Texaco Trinidad petroleum refinery at Pointe-a-Pierre.

The ammonium sulphate is being produced primarily for export to South America.

UNITED ARAB REPUBLICS

Egyptian Chemical Industries has expanded its Aswan plant from 1200 to 1600 daily tons of ammonium calcium nitrate. This is part of the UAR five-year industrialization plan.

(*Concluded on page* 36)

—Around the Map...

UNITED KINGDOM

Fisons will by 1962 have doubled its N capacity at the Lincolnshire plant, to 14,600 annual tons. An extensive expansion program is now under way.

YUGOSLAVIA

Proizvodnja Nafte will be supplied with a plant for conversion of natural gas to gas destined for a methanol production unit. This will be produced by them through agreement between Societe Belge de l'Azote et des Produits Chimiques du Marly (SBA) and D. Bonaldi & Co., S.p.A., Crema, Italy.

The plant to be delivered is designed by the SBA engineers and operates on a technique known as the SBA-HT process, owned jointly by SBA and the Topsoe Company, Copenhagen. This enables production of synthesis gas for ammonia and methanol by cracking various hydrocarbons.

Phosphate Industry Expands in Florida

The nine phosphate mining and processing companies operating in Florida, according to the 1961 report of the Florida State Phosphate Council, increased their payroll in 1960 by 500 workers. This brought the total number of employees to 5,920, to whom was paid a total of more than $30,500,000, an average of $5,168 to each worker.

The average earnings for each employee includes those in executive, technical and other salaried positions, as well as those paid on an hourly basis.

Due to enormous and expanding citrus and other agricultural programs, Florida is her own best customer for phosphate produced within the state.

'Vacuum' Mining Of Ocean Floor

An underwater "vacuum cleaner" type of mining to recover phosphorite from 600 feet of water off the coast of California is in prospect, according to the Bureau of Land Management in New Orleans.

Nominations for acreage to be leased in a bidding will be received by the department of the interior up to Sept. 15. Suggested lease blocks are of 5760 acres each, and minimum bonus payments have been recommended at $5 an acre.

Collier Carbon and Chemical Co. of Brea, Calif., has expressed interest in the phosphorus-rich pebble deposit, which is approximately 40 miles off the coast of California, about mid-way between San Diego and San Clemente island.

This will be the first federal mineral leasing on the West coast, and if operations are successful, it will be the first underwater phosphate mining venture.

Secretary of the Interior Stewart L. Udall has asked the minerals industry to make suggestions for leasing and to recommend the areas to be offered for bids. No time or place for the opening of the bids has been set.

Administration of the operation will be similar to those methods now in effect for oil and gas operations off the coast of Louisiana.

Stockton Looks for Big Potash Traffic

Port officials at Stockton, Cal. feel they have made a start in developing what they say could become a 500,000-ton annual movement of potash through their inland port.

The initial shipment of this commodity, destined for agricultural use in Japan, consisted of 5,250 tons recently loaded aboard the British freighter Inchstaffa. It came by rail from the plant of Bonneville, Ltd., at Wendover, Utah, where potash is reclaimed from the salt flats south of Great Salt Lake.

Tax Rises Force Selling of Farms

Sharp advances in taxes are forcing many farmers to sell their land in urban-rural fringe areas to speculators.

This has been caused by the farmers' inability to make enough money from farming the land to pay the increased assessments and hold their acreage long enough to get the price that speculators eventually do when it is developed for homes and other purposes.

The Agriculture Department, in studying this problem, has made a survey of actions being taken by some states to give farmers a helping hand.

As more people move to the suburbs, the demand for land on which to build houses, shopping centers and schools generates a considerable increase in land values. These pressures are often translated into higher property taxes.

When property is assessed in relation to its market value—as is the case in most states—the assessed value is determined primarily by the selling prices of similar land in the area, sales of farmland for nonfarm use begin to affect the potential value of the surrounding farmland.

If selling continues, the highest and best use, or true market value, is no longer represented by farming but by more intensive uses, particularly for residential purposes. Local assessors have little choice but to increase assessed values in the neighborhood. Assessed values on the remaining farmland rise accordingly.

This movement from city to new suburban developments brings demands for increased services, such as sewers, better roads, new schools, expanded police and fire protection and similar community services.

To provide these it becomes necessary for local government units to raise more money. They rely heavily on taxes on property.

In pointing these things out, the department says the new and higher taxes simply become an added fixed charge against farm income and make farming in the area less profitable.

"High taxes thus squeeze out the farmer," it says, "If he is able to absorb the higher taxes, he may be able to continue farming until time is ripe to sell. However, few farmers have the holding power to wait. Whatever capital they have is usually tied up in the farm. Therefore, they are forced to sell years before their land is to be used for a subdivision.

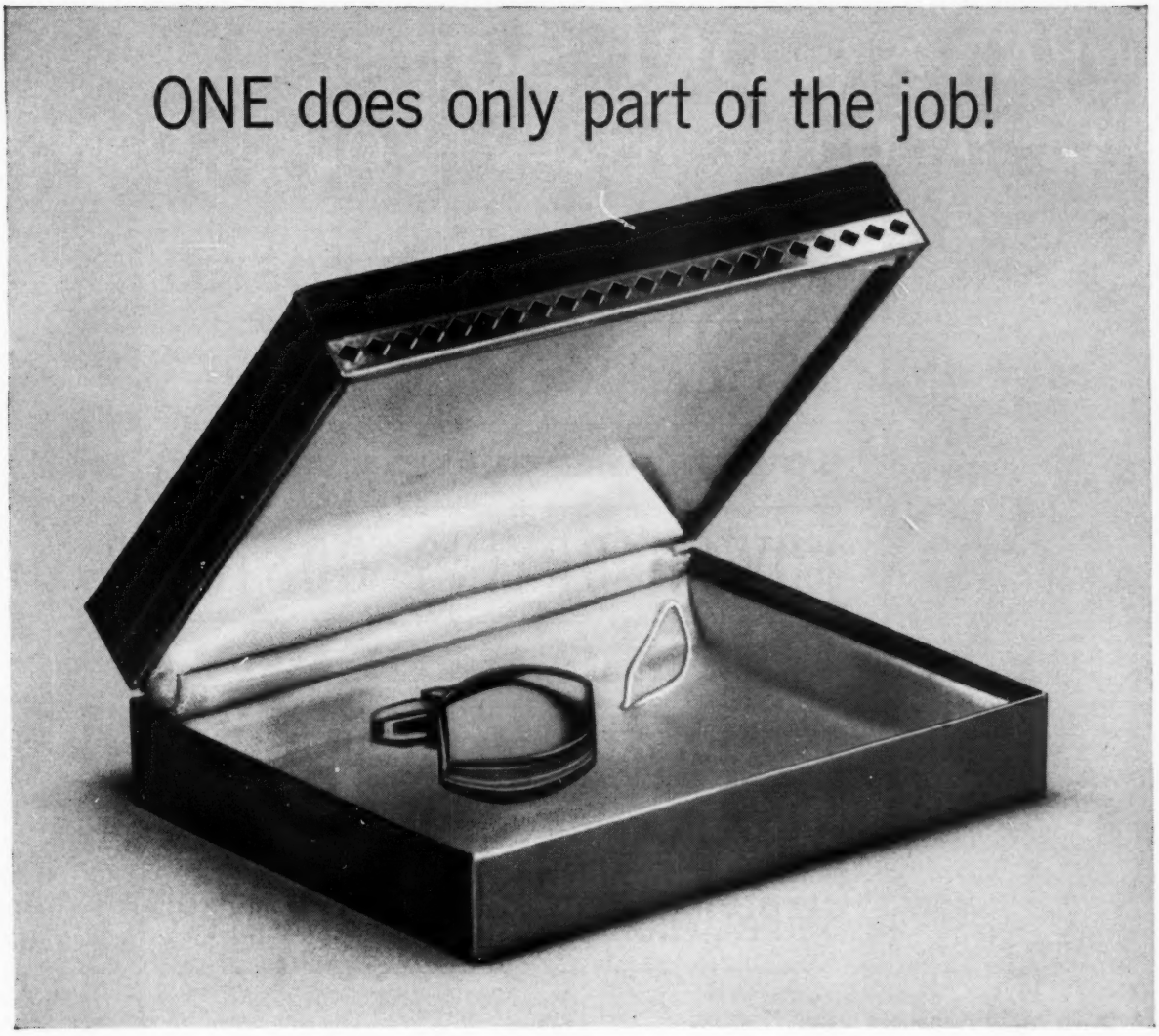
The department says that much of this land falls into hands of investors who allow the purchased farmland to remain idle until the area is ready for development.

"If this idle land is allowed to go to weeds, it gives the remaining farmers additional incentive to vacate their lands. It becomes, moreover, a local eyesore and a wasted resource."

The department says some states have attempted to meet the problem of forced selling of farmland by legislation which affects the assessment and taxation of these lands.

Most of this legislation is designed to make it easier for farmers to continue farming until the land is ready for another use. Behind these laws is the widespread feeling that the uncontrolled withdrawal of farmland is one of the chief causes of the so-called suburban sprawl, and that legislation to hold down assessments on farmland is a primary step in the direction of planned and orderly suburban development.

Three major approaches have been taken by states acting on this problem. One is preferential assessment, which attempts to value the property for tax purposes on the basis of the current rather than potential use of the land.



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Davison phosphates are highly respected products. They deserve their reputation because they have earned it over the years. To Davison, quality of product is important . . . but only part of the story. When you decide on Davison as your source for phosphates . . . normal, triple, or diammonium, everything is keyed to assure you of satisfaction. Delivery is dependable. Uniformity is carefully controlled and assured. And if you need technical assistance Davison experts are ready, willing and very able to help you.

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GRACE

DAVISON CHEMICAL

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WHAT ARE DRI-SOL® BENEFITS IN MIXED-FERTILIZER PRODUCTION?

REDUCED SHIPPING COSTS

BETTER PROCESS CONTROL

LOWER FORMULATION COSTS

LOWER DRYING COSTS

A DRIER PRODUCT

INCREASED PLANT CAPACITY

FASTER CURING—QUICKER SHIPMENT

IMPROVED FERTILIZER QUALITY

More and more fertilizer manufacturers are turning to DRI-SOL ammoniating solutions as a sure, time-tested way to lower production costs and improve mixed-fertilizer quality.

For in addition to the eight cost-saving and quality-building advantages shown above, DRI-SOL can also help manufacturers offset the high water content of low-strength acid. It also helps to produce grades which are difficult or impossible to make with conventional solutions.

What grade of DRI-SOL meets your needs best? From a wide choice of formulations you can select the solution that offers you the greatest number of advantages. Each grade contains less than 0.5% water. Grades range from 24% ammonia and 76% ammonium nitrate, to 50% ammonia and 50% ammonium nitrate, and are generally available in all the Southern and Midwestern States.

Why not get complete information? Technical data to fertilizer manufacturers available upon request. Write: Agricultural Chemicals Department, Commercial Solvents Corporation, 260 Madison Avenue, New York 16, New York. Offices also located in: Atlanta, Shreveport, St. Louis.

COMMERCIAL SOLVENTS CORPORATION CSC

Granulation Reaches Alabama

Granulation has established a strong toehold in Alabama, last among the nation's major fertilizer-consuming states to install plants for granulation of mixed goods.

Two new units, both owned by cooperatives, were placed in operation earlier this year. Both are located in the northern sector of the state.

The Cotton Producers Association, a cooperative organization headquartered at Atlanta, Ga., built a new plant 'from the ground up', just south of Hanceville, in the Cullman area, which came onstream about the turn of the year. This represented a 'first' for CPA in two respects. It was the first granulating plant the association has erected at a location where it had not previously manufactured pulverant mixed goods. And it was the first fertilizer plant the co-op has acquired outside Georgia.

CPA converted one of its major plants, located at Cordele, Ga., to granular production early last year by adding a granulation unit to the existing plant. The association operates mixing plants at five other cities in the state, manufacturing its own superphosphate at two plants. Gross mixed-goods capacity of the seven plants is rated at 185,000 tons annually.

Cotton Producers have ventured into Alabama at the mixing level once before, when it leased and operated an older plant for two seasons several years ago.

The second organization to begin granular production early this year was Alabama Farmers Cooperative at Decatur. The recently reorganized cooperative —formerly operated as Tennessee Valley Cooperatives— owned a 30-tons-per-hour batch-type mixing plant which had ammoniation facilities and manufactured its own superphosphate. Conversion to granular output was accomplished by adding a granulation unit in a new structure connected to the existing plant by a conveyor bridge.

Detailed stories of the two new granulation plants can be found on pages 40-43 in this issue.

IMC Sets Industry Training Clinics, Announces County Agent Scholarships

For the fourth consecutive season, International Minerals & Chemical Corporation will sponsor a series of cross-country training clinics this fall for customer companies in the fertilizer industry.

The 1961 series, "Total Service Selling," will take the program back into sales training after the special production and technical meetings held last fall. The meetings originally were requested by fertilizer companies as an aid to management in providing continuous training specifically for salesmen in the fertilizer industry.

Completely new material and new approaches to quality selling and service selling have been developed.

William W. Chadwick, IMC's manager of merchandising, will direct the program and preside at all 10 meetings, which will open October 4 in New York City and close November 16 in New Orleans. The complete schedule: Oct. 4-5, New York City (Park-Sheraton); Oct. 9-10, Baltimore (Lord Baltimore) Oct. 11-12, Raleigh (Plantation Inn); Oct. 16-17, Kansas City (Muehlebach), Oct. 23-24, Indianapolis (Marott) Oct. 25-26, Toledo (Secor); Oct. 30-31, Minneapolis (Pick-Nicollet); Nov. 1-2, Macon (Dempsey Motor Hotel); Nov. 13-14, Dallas (Marriott Motor Hotel); Nov. 15-16, New Orleans (Royal Orleans).

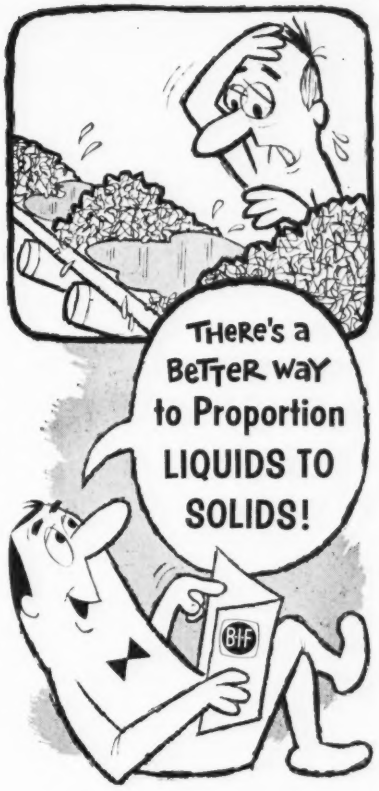
County Agent Program

A new scholarship program for county agents—designed to increase the effective use of communications in agriculture—will be inaugurated late this summer. Announcement of awards to 15 county Agricultural Extension agents will be made in New York September 9.

The scholarships, sponsored by International Minerals & Chemical Corporation, will be awarded during a dinner preceding the annual meeting of the National Association of County Agricultural Agents.

In announcing the new program, IMC said the scholarship awards are designed to further develop the county agents' abilities in communicating to farmers the latest agricultural ideas and developments.

B-I-F POSITIVE CONTROL OF MATERIALS FLOW



Does your present proportioning system suffer from short range limitations? Can one unit run empty and waste ingredients . . . spoil end product? B-I-F offers a new concept in the control of liquid to solid proportioning in the combination of its continuous dry materials weigher and its closed loop metering system. Fail-safe system — automatically stops when either unit is empty . . . prevents ingredient waste and product spoilage. Forced balance weighing principle provides wide range, greater accuracy. System governed by simple gravity flow . . . operates automatically, continuously . . . features explosion-proof construction!

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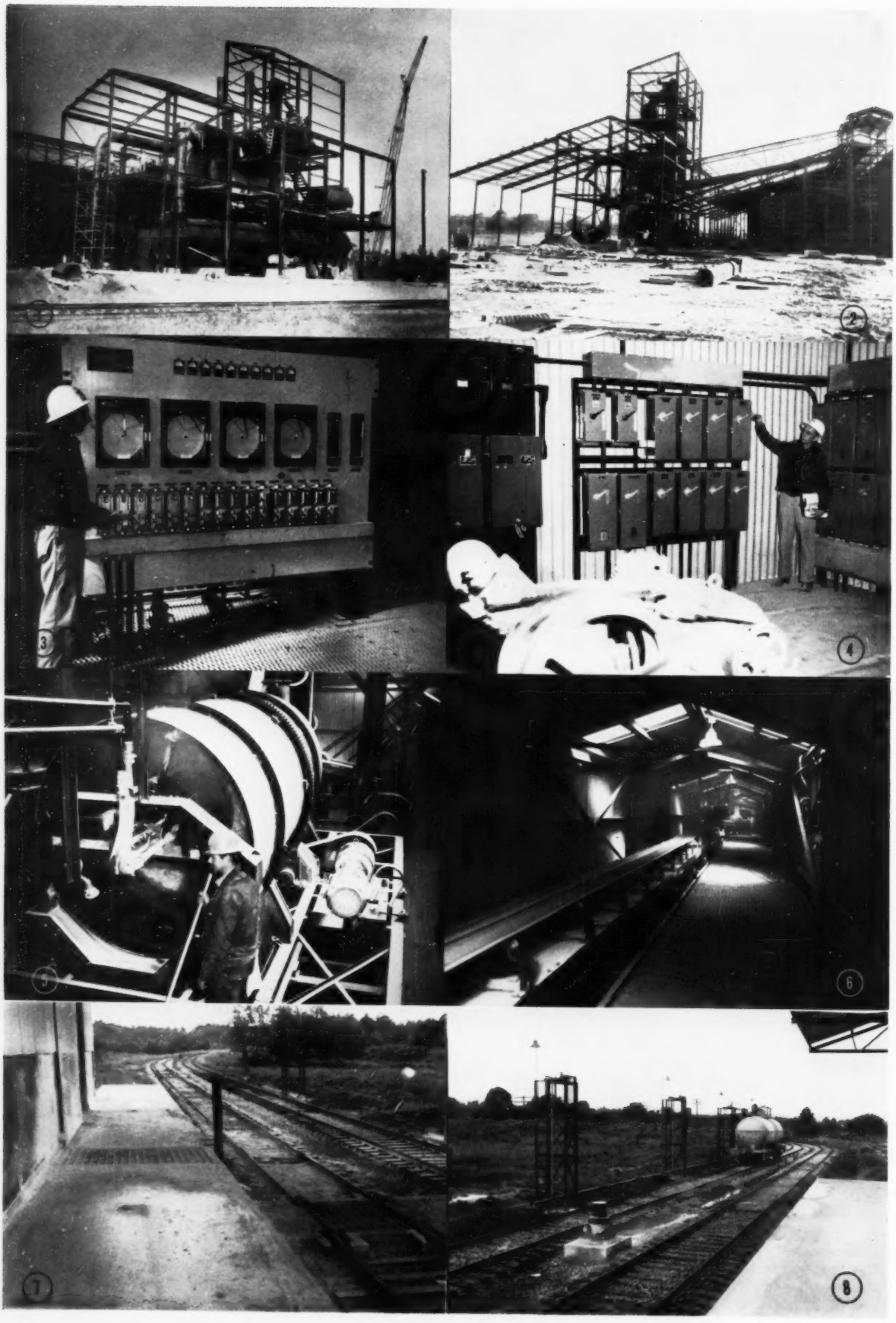


Cotton Producers Association Builds Modern Granulation Plant at Hanceville

The Cotton Producers Association put a new fertilizer granulating plant in service at Hanceville, Alabama early this year. The plant, the first built in Alabama for granulation of mixed fertilizers, is the first fertilizer plant CPA has built outside Georgia, where its headquarters are located in Atlanta.

The new plant at Hanceville, in the Cullman area of north Alabama, designed and built by the D. M. Weatherly Co., was planned for a typical capacity of 30 tons an hour on most grades. The facility boasts no unusual or extreme features, but is equipped with the newest modifications of the standard 'tried and true' methods.

Raw materials are brought into the plant by screw conveyors. One screw is set underground beneath the two rail spur tracks, and can unload hopper cars on either track; this system is used to bring in potash, principally.

The covered rail loading dock has a grate in the floor, positioned above a screw conveyor alongside the place where boxcars are spotted. This is used for superphosphate unloading (the plant does not make its own, but receives it from another of the association's plants).

The main portion of the building, that part housing the storage bins, is divided into two entirely separate parts, with the long center wall separating the materials storage bins from the product storage bins. In a multi-level wing toward the rail spurs is located the manufacturing department. In a wing off the product storage side of the main building are located the two shipping units, the bagged goods storage room, covered truck loading dock, offices and auxiliary facilities.

Liquid materials, except for acid, are worked directly from tank cars at one of four service towers on the siding. Sulfuric acid is stored in an elevated tank alongside the tracks.

Dry materials are shuttled from storage bins by front-end loader to a grate in the aisle floor, where a variable-pitch screw conveyor carries them to an elevator. A chain mill reduces lumps before the material goes through a swivel chute to a six-cluster hopper equipped with high and low material level indicators. Here the materials are weighed and fed into the continuous ammoniator. The tractor shovel operator controls the swivel chute, position of which is indicated on an illuminated panel, which also shows high and low level readings from each of the six hoppers.

The ammoniator-granulator is 7' x 14', with a 10-foot ammoniating chamber. Three sparger pipes, fed by 1½" lines, introduce solution, acid and steam under the rolling bed of dry materials. The discharge from the ammoniator is chuted into the 8' x 50' dryer, heated by a 13 million BTU forced-draft burner. Dryer exit material is elevated and fed into the 85 x 50' cooler. Dryer and cooler are equipped with individual air systems, with a cyclone for each. Cyclone discharges are fed by vibrating conveyor back to recycle. The ammoniator is vented into a slightly acidulated water scrubbing system; the scrub water is fed back into the ammoniator through the steam line. Steam is used on all grades except 10-10-10.

Produce is elevated from the cooler discharge to a pair of Tyler Hummer screens, working in parallel. All grades are screened -6 16. Over-size particles are crushed in a cage mill and fed with fines back to recycle.

Plant manager Ed Appling at desk in his private office.

Product goes through a conveyor bridge to a longitudinal conveyor mounted above and in line with a shuttle conveyor which can charge any storage bin.

The shipping department is equipped with two separate I&C open-mouth bagging units. Tractor shovels dump the goods into grates in the aisle, where they are screw-conveyed to elevators fed through chain mills, and discharged into the bagging hoppers. One of the units is equipped to weigh goods in bulk through the bagging machine and out to bulk loading under the covered truck loading dock. Both units are equipped with extendable conveyors for truck loading of bagged goods.

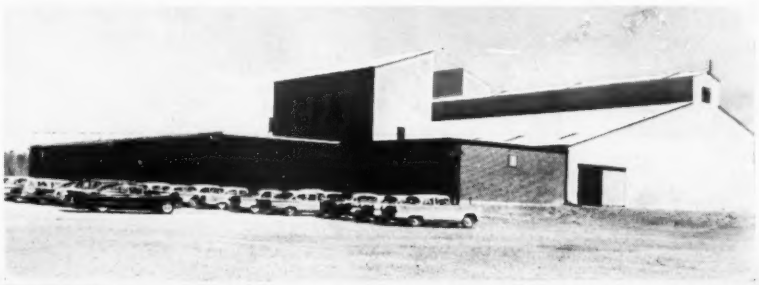
An adjacent bagged-goods storage area also can load trucks under the covered dock. Most goods are shipped in multiwall bags, both 100-lb. and 50-lb. sizes, with the 50-lb. bags showing a great gain in popularity.

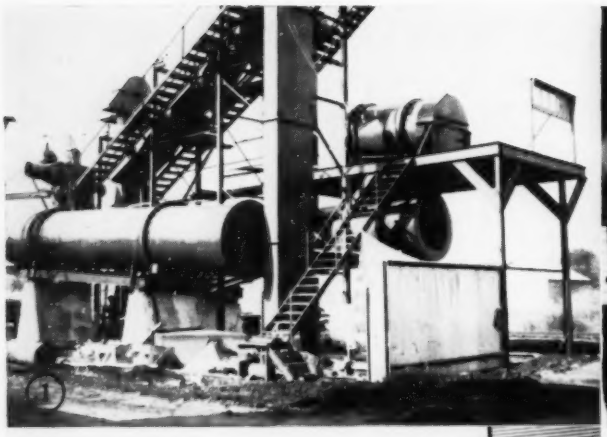
Grades manufactured at the plant this season included 4-12-12, 10-10-10, 8-8-2, 4-8-16, 6-18-18, 15-0-15, 0-16-8, and 0-14-14. Most grades are run at 30 tons an hour, but 4-12-12 can be produced at 40 tons an hour, and 10-10-10 is generally run at 20 tons an hour. Manufacturing is a three-man operation: one man on the tractor shovel, one weighing, and on at the ammoniator; a fourth man rotates in relief.

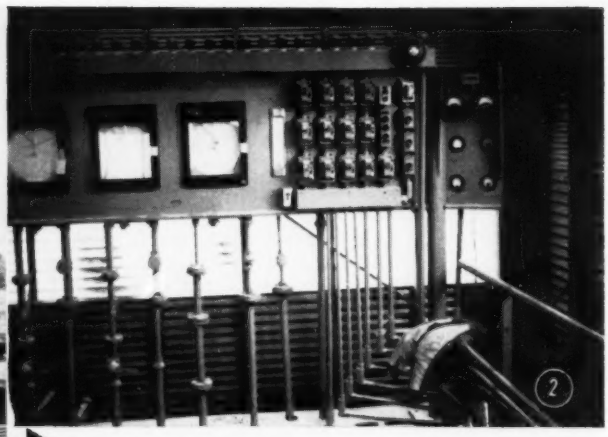
←Key to picture at left.

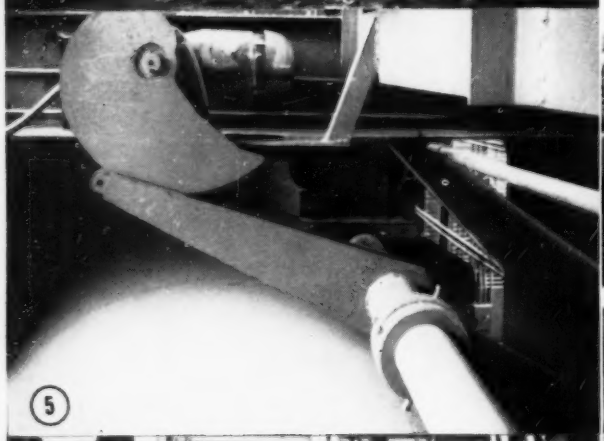
1. Construction view across rail spurs shows size and arrangement of equipment. Ammoniator is located at right on second level. Dryer is in foreground on first level, with cooler behind it and common air handling unit at left end. Screens are on fourth level, just below elevator head.
2. Later construction view from end of building shows manufacturing department at left, with framework at extreme left for covered rail dock. Storage building at right offers complete separation between raw materials storage and product storage.
3. Plant manager Ed Appling is pictured beside modern control panel located alongside ammoniator discharge.
4. Controls and compressors are located in special enclosed, ventilated room immediately behind control panel.
5. Operator stands beside ammoniator discharge chute, looking in direction of control panel. Floodlighting gives exceptionally good visibility into ammoniator.
6. Well-lighted conveyorway has two belt systems. Shuttle belt in foreground at left handles product going to storage; belt in background at right handles incoming raw materials.
7. Raw materials are brought into plant by screw conveyor system. Grate at right between rails unloads potash from hopper cars; similar grate is beyond it, between rails of other spur track. Grate in loading dock floor at left is for conveying superphosphate (unloaded from boxcar by tractor shovel) by screw into plant's elevator and belt conveyor setup.
8. Four towers spotted along outer spur track unload solutions and anhydrous ammonia from tank cars. Liquid nitrogen materials are worked from cars, with no on-site storage facilities. Acid is unloaded and stored in elevated tank beside rail spur shed.

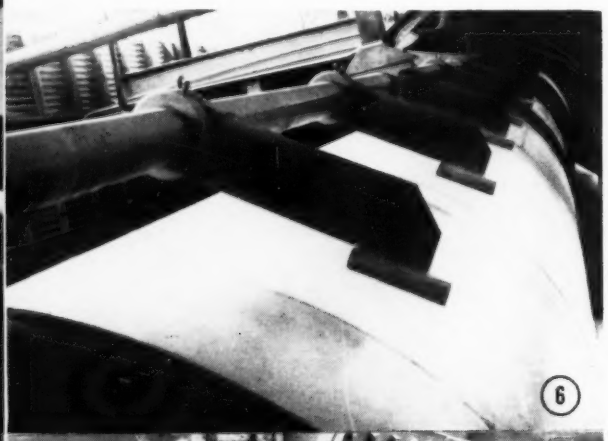
Photograph of plant from front shows parking area during 'open house' plant tours. Covered truck loading dock on front is served by two separate bagging units with extendable belt conveyors, and is accessible from bagged-goods storage room. Air-conditioned office and sales area is at extreme left.

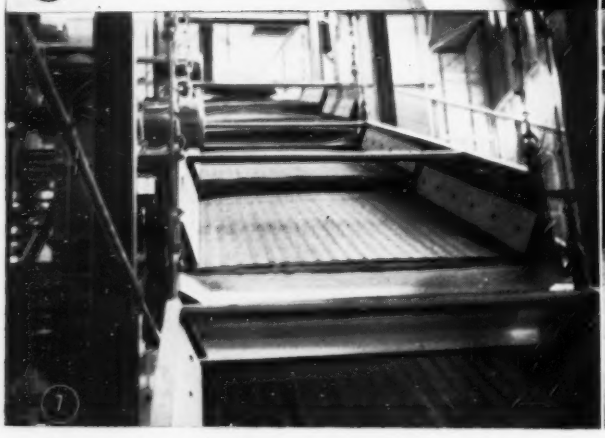


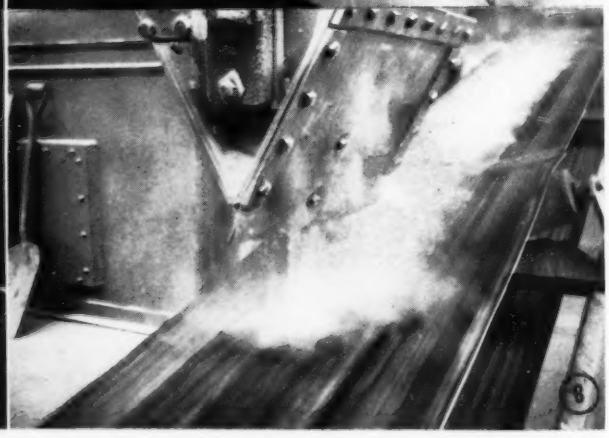












ALABAMA FARMERS CO-OP ADDS GRANULATION

1. View during construction shows placement of major equipment units. Cooler is on main level in foreground, dryer in background. Ammoniator is in position on upper level, and set of screens in series is on uppermost level. Air handling equipment for dryer and cooler is at left behind the two units.

2. Control panel is situated on ammoniator deck in well-lighted area.

3. Conveyor bridge across rail siding connects new granulation plant at right with older manufacturing and storage building at left.

5. Unusual hammer setup on dryer features simultaneous operation of all hammers to get maximum impact all at once. Hammers are arranged on pipe shaft with set collars to hold them in position. Rotation of shaft (to lift hammers) is timed by this motor-driven cam.

6. Line of dryer hammers at impact point. Shaft cams lift hammers and releases them simultaneously; free fall of hammers develops impact.

7. Unusual series-screening arrangement brings product across three single-deck divided screens, allowing great flexibility in fractions of product to be routed to storage or recycled.

8. Rubber flap discharge on cyclone dust collector feeds directly onto belt conveyor recycling fines from classification screens.

Alabama Farmers Cooperative Adds Granulation Unit to Plant

Alabama Farmers Cooperative, Inc., added a granulation unit to its plant early this year. The cooperative, located at Decatur, on the Wheeler reservoir of the Tennessee River in northern Alabama, was reorganized last year under the present name, having formerly operated as Tennessee Valley Cooperatives. Through the change, G. L. Braly remained as president of the group, E. P. Garrett as general manager and Robert C. Bibb as superintendent of the fertilizer plant.

The plant already had a substantial fertilizer operation, making its own superphosphate and ammoniating on a batch basis. Mixed goods were produced at a 30-tons-an-hour rate in the batching equipment. Two bagging units operated at a combined capacity of 40 tons an hour, and the shipping department was equipped with bulk loading facilities.

Addition of granulation machinery was accomplished by building a separate 40' x 80' structure just across the rail siding from the existing plant, with the two units connected by a belt conveyor bridge above the spur track.

Fertilizer Equipment Sales Corp. of Atlanta, Ga. handled the design and construction of the granulation plant.

The new unit, which came into operation February 1, was designed for a 15 to 20 tons an hour production rate, depending on the grade being manufactured. The existing I&C batching hopper system in the older plant was modified to operate as a time-batch feeder on a two-minute cycle for the granulation plant. Flexibility remains, in that the batching system can still be operated as a dry-mixing unit.

Pre-batched dry materials formulated for granulation are fed across the conveyor bridge into elevator which chutes them into the 6' x 10' ammoniator. From there, goods are chuted to the 7' x 45' dryer on the level directly below the ammoniator. The dryer is heated by a 12 million BTU combustion chamber equipped with a Western area-type burner. Ex-dryer product is elevated and chuted into the 6' x 40' cooler, located parallel to the dryer.

With co-current drying and counter-current cooling, a single 90" double-inlet cyclone equipped with 100 h.p. rollout fan serves both the cooler and dryer requiring a minimum of ductwork. The cyclone has a rubber flap model "MA" valve on the bottom to discharge dust onto the conveyor belt which collects fines from the classification screens.

From the cooler, the product stream is elevated to an out-of-the-ordinary particle size classification system composed of three single-deck vibrating screens in series, mounted on an incline above—and extending nearly the full length of—the dryer and cooler (see pictures 1and 7 on opposite page). Each of the three screens has a split deck with the lower portion stepped-down from the upper one. The product cascades down the series of screens and can be separated into four separate fractions for routing to product or recycle.

The topmost unit is furnished with 14-mesh screen on both sections; material passing through the screens can be chuted to recycle belt or to product belt. The middle screen is equipped with 12-mesh on the upper section and 10-mesh on the lower; material passing through each section can be routed separately to product storage or recycle. The final screen has 7-mesh on both sections, and pass-through can also be routed to either belt.

Oversize particles which cascade off the end of the lowest screen are crushed in a roll mill and routed back through the cooler or onto the conveyor belt collecting fines, which chutes the fines back into the ammoniator feed.

One of the principal grades manufactured, 4-12-12, is generally screened —7 +14. Intermediate grades are usually sized —7 +18, and very liquid grades are held to a —7 +10 product which offers a greater amount of recycle to help control the liquid phase in the ammoniator.

Grades produced by the new granulation unit in the initial season included 0-14-14, 4-12-12, 8-24-24, 6-8-8, and 1-1-1 ratios from 8-8-8 to 13-13-13 in analysis.

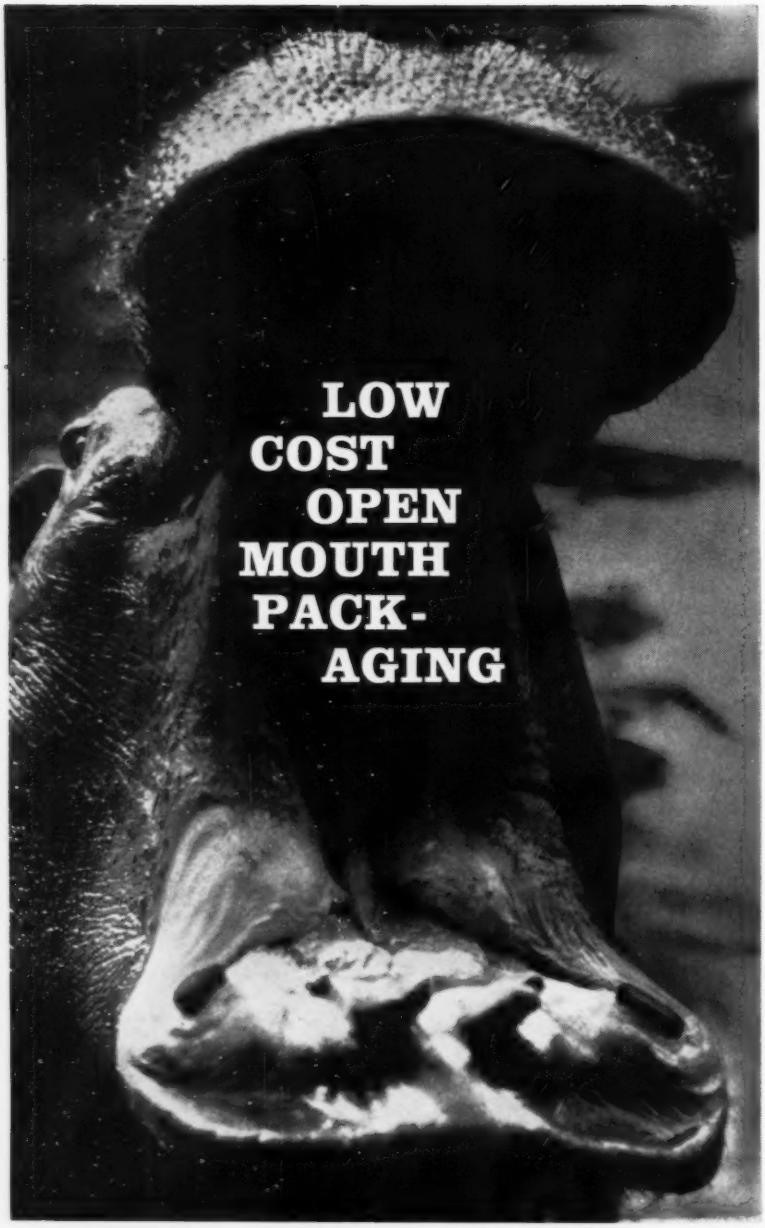
Effluent from the plant is vented into a low-velocity, low-pressure discharge baffle impingent water scrubber.

Dryer, cooler and other machinery are elevated from the floor of the granulator building so that a tractor shovel can pass under any unit, simplifying cleanup operations. The equipment elevation also eliminated the need for elevator pits in the floor of the structure.

Another unusual feature of the plant is the hammer system to prevent material buildup on the interior wall of the dryer. Instead of the typical hinged, gravity-operated hammers spaced at intervals around the exterior of the dryer cylinder—as in most granulating plants—the Decatur plant has a power-driven timing device that operates all hammers simultaneously to derive maximum impact all at once (see pictures 5 and 6 on opposite page).

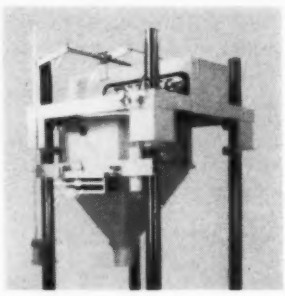
All the hammers are mounted to swing free on a heavy pipe shaft that extends the full length of the dryer. Each hammer is held in position by a set collar on each side of the point where the shaft passes through the hammer lever. Cams, fixed to the shaft, lift each hammer by a pin set in the hammer lever. Then, when the cams release the hammer simultaneously, all fall free to strike the dryer cylinder with a cumulative impact. The shaft is controlled by a cam and lever arrangement driven by a variable-speed motor (see picture 5, page 42).

View from distance shows new granulating facility at left, connecting with existing building at right via belt conveyor bridge across rail spur.



with the STReamflow Scale

- Low initial cost
- Rugged construction
- High production . . . up to 30 bags a minute
- Accurate weights—less product give-away
- Entirely automatic operation
- Simplicity of design . . . rapid grade and net weight changes
- Requires minimum maintenance



PACKAGING-IN-DEPTH

BY St.Regis PAPER COMPANY BAG DIVISION

In Canada, contact St. Regis Consolidated Packaging Co., Ltd.

SELLING THE POTENTIAL

(*continued from page 25*)

the job. You may give a man an "A" for working to the best of his ability, but you may have to give him the grade of "F" from the standpoint of results. One of the reasons we introduced the mental alertness test was that we were hiring people with the will to do a job, and they were trying hard to do that job, but they didn't have what it took. Our selection and training have brought us to a rather blunt evaluation and that is this: if you hire a clod, you end up with a clod. This may sound like a severe evaluation but we are convinced that is grossly unfair to an applicant and a company to hire a man for a job for which he does not possess the capability.

Training of a new salesman consists of the following four basic steps: 1. Prepare the learner; 2. Present the material; 3. Practice by learning; 4. Follow up and check results.

Without a doubt, the first two are the easiest and the last two are the most difficult. From my experience, the thing I would stress is practice, practice and more practice until it becomes a habit. On a follow-up, we use a supervisor check list. This check list is so designed that the supervisor can automatically check the salesman as he is working with him. Our experience indicates that training involves a combination of your present company training supervisor and an outside staff or specialist, but I am convinced that no training program will get off the ground unless it has the full support and follow-up of your management.

I might add here that our sales meetings and sales clinics are always conducted with visual aids and prepared material, and have numerous sales presentation contests.

I would like to discuss briefly the appraisal form which we use to appraise our salesmen. On the appraisal form, we cover such matters as the estimated sales for the coming year. We indicate the potential that's available in the area. We establish goals with regard to number of calls per day, number of new accounts, performance we expect with regard to credit, and some idea of the profitability of this effort at the salesman's level. At the end of the selling season, the supervisor again sits down with the employee and performance is measured against the goals that were set. As a matter of fact, it makes it very easy for the

employee to gauge his own performance, and the supervisor can spend time discussing how he may develop into a more efficient salesman.

Salesmen are required to keep customer records which aid the supervisor in determining how effectively he routes himself, the size of the accounts he calls on, as well as those he is selling and those he is not. All people like to know how they are doing in their particular job. This is especially true with salesmen because they are more or less on their own most of the time.

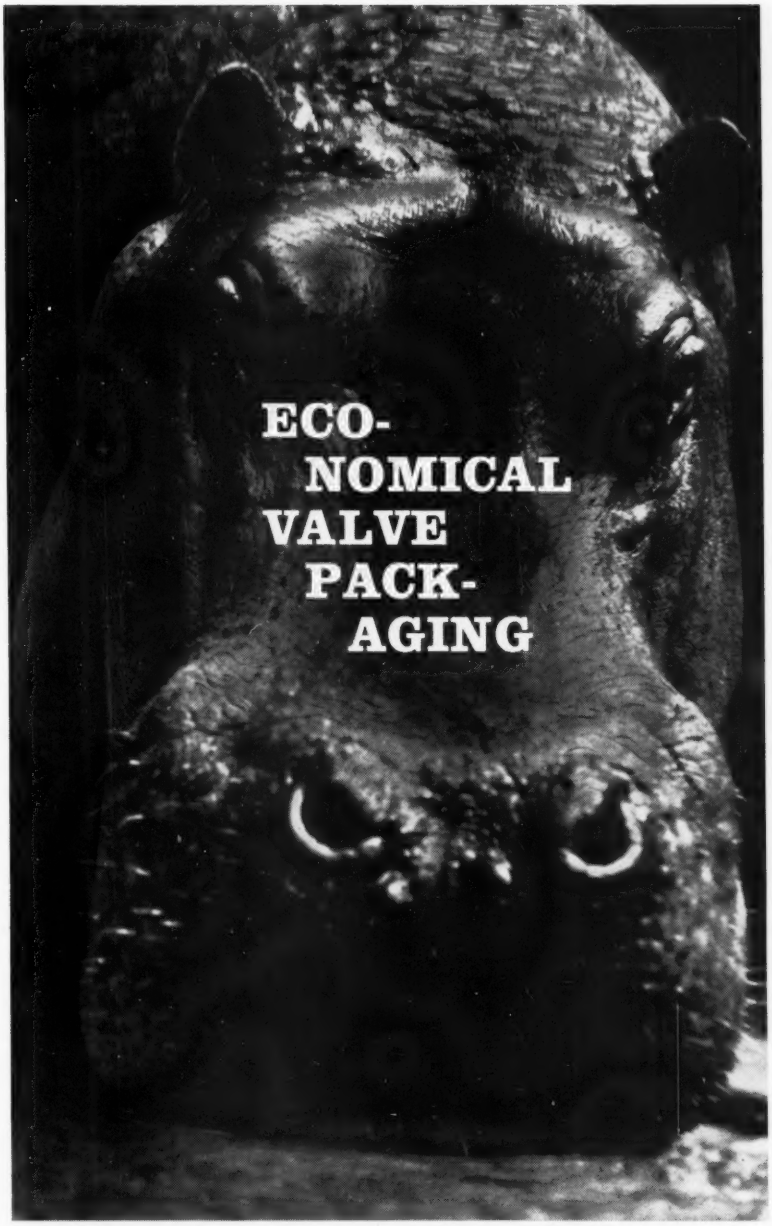
Now that we have discussed the potential of the area, selecting the type of sales personnel and the training necessary to obtain our potential, we must now go one step further. In other words, telling the people about our products through advertising.

In most companies, advertising dollars are limited and should be used to the greatest extent possible to sell a specific product as well as the company image. The advertising program must dove-tail with the marketing program. It should complement, it should emphasize, and it should duplicate the total sales efforts. Advertising that isn't carefully planned is a complete waste of money, time and effort.

Since the agricultural chemical business is prey to weather and other uncontrollable market factors, it is important that your advertising and sales promotion program be so built that they are flexible and can be adjusted to meet changing weather conditions. I refer here to changing the timing of the advertising programs rather than the contents of those programs.

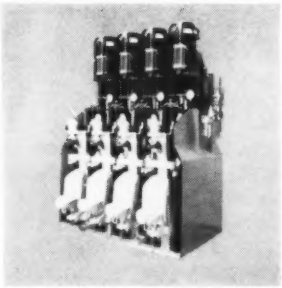
Finally, it is very important that your entire sales force be fully informed and sold on the advertising program. It should be thoroughly explained to every salesman so that he can use it in his sales presentation to the buyer. Here again, let me emphasize that effective advertising is carefully planned over a long period of time and not hastily put together at the last moment.

Selling the potential in any area is the desire of all companies, but to do this it will take hard work. What I have discussed with you today is the key to that goal. People buy products, not for the product itself but for what it will do for them. The purchase of that product satisfies a need in their lives, such as a beautiful home, clothing, cars, a college education for the children. A salesman that can find this hidden need will be successful—and remember, don't sell fertilizer, sell customer satisfaction.



with the Force Flow Packer

- **High production**
- **Packs all grades and types of goods**
- **One man operation—less operator fatigue**
- **Simultaneous filling and weighing, plus automatic discharge**
- **Excellent weight accuracy**
- **Clean operation with little or no spill**
- **Lower maintenance costs**
- **Eliminates filling-tube plugging**



PACKAGING-IN-DEPTH

BY **St.Regis** PAPER COMPANY BAG DIVISION

In Canada, contact St. Regis Consolidated Packaging Co., Ltd.

CHANGES

Dorr-Oliver Forms Tank, Reactor Subsidiary

Dorcon Incorporated, a wholly-owned subsidiary of Dorr-Oliver Incorporated, Stamford, Connecticut, is being formed to engage in the design, manufacture, fabrication and field erection of metal tanks, water and chemical storage facilities, and process and reaction vessels.

Officers of the new company will be Alex Fino, president; K. Earl Abel, treasurer; and John W. Swick, secretary. Administrative and engineering offices will be at Warren, Pennsylvania, and sales headquarters in Pittsburgh, Pennsylvania, with Max G. Walker as sales manager.

The addition of Dorcon to the Dorr-Oliver group of companies will provide a specialized organization to engineer and erect plate steel vessels required in connection with such Dorr-Oliver equipment as thickeners, clarifiers, and reactors, and with Dorr-Oliver process and plant engineering operations. In addition, the new company will manufacture, erect, and market a complete line of steel plate, alloy and aluminum tanks and vessels, such as elevated water tanks, petroleum storage tanks, digesters and reactors. The officers and engineering and supervisory staff are all closely familiar with this field, with many years of experience in design and erection of such vessels.

Arkansas Plant Merges With Coastal Chemical

Stockholders of Arkansas Plant Food Company, North Little Rock, Ark., which makes and sells fertilizer, have approved transfer of the company's fixed assets to the Coastal Chemical Corporation, a subsidiary of Mississippi Chemical Corporation, of Yazoo City, Miss., in exchange for stock. Arkansas Plant Food is affiliated with the Arkansas Farm Bureau Federation.

Coastal will maintain and operate the fertilizer plant. The Mississippi company makes basic fertilizer materials while Arkansas Plant Food's operations were confined to mixing.

The two companies previously were linked in a working relationship. Arkansas Plant Food has owned Coastal stock for the past three years and has sold Coastal products. It also used Coastal plant food materials in its fertilizer mixes.

The North Little Rock Company began operations in 1950. It has an annual production of about 50,000 tons of fertilizer and sales of about $2,750,000.

Spencer Chemical Acquires Perkins Glue Company

An agreement and plan of reorganization was entered into July 31 between Perkins Glue Company and Spencer Chemical Company whereby Spencer will acquire all of the assets of Perkins in exchange for Spencer common stock, according to a joint announcement from the two companies. The number of shares of stock involved in the exchange was not revealed.

J. C. Denton, president of Spencer, and James Stryker, Perkins chairman, said that the arrangement offers many mutual advantages for future growth and development. Mr. Denton said that Perkins will be operated as a wholly-owned subsidiary with the present Perkins management maintaining the active direction of the firm's business.

Hercules Powder Opens New District Office

Establishment of a new district office at Louisiana, Missouri, to handle sales and service of its agricultural products was announced by Hercules Powder Company's Agricultural Chemicals Division. The new office will service a fourteen-state area with agricultural chemicals, including plant foods and pesticides.

Appointed to staff the new district office were: Henry F. Pierce, district manager; Don M. Allison, senior technical sales representative; Dr. Robert E. Ogle, senior technical sales representative; Harry W. Cannon, technical sales representative; and Richard Grimm, sales correspondent.

Mr. Pierce, an entomologist with years' experience in agriculture, joined Hercules in 1951.

Mr. Allison, an agronomist, joined Hercules in 1955. Dr. Ogle, a horticulturist, joined them in 1953. Mr. Cannon, an agronomist, has been with Hercules since 1959; Mr. Grimm joined the company in 1954.

Creation of the new sales territory is designed to provide more effective sales service in the agriculturally important midwest.

B-I-F Now Division of New York Air Brake

B-I-F Industries, a leader in automatic flow control, measurement, and weighing of gases, liquids, and solids, and specialists in providing equipment and engineered systems for many process industries, as well as water works and sewage and industrial waste treatment plants, announces that negotiations have been completed, and that B-I-F is now a division of The New York Air Brake Company.

B-I-F Industries continues in Providence, Rhode Island, under the same operating management and with no change in aims or objectives.

Tyler Appoints SE Distributor

The Implement Sales Company, 2875 East Ponce de Leon Avenue, Decatur, Georgia, has been appointed a distributor for the Tyler Manufacturing Company, Inc., Benson, Minnesota, fertilizer spreader manufacturer. States covered in the appointment are: North Carolina, South Carolina, Georgia, Eastern Tennessee, Eastern Alabama and Florida.

Conservation Practices Added To ACP Domain

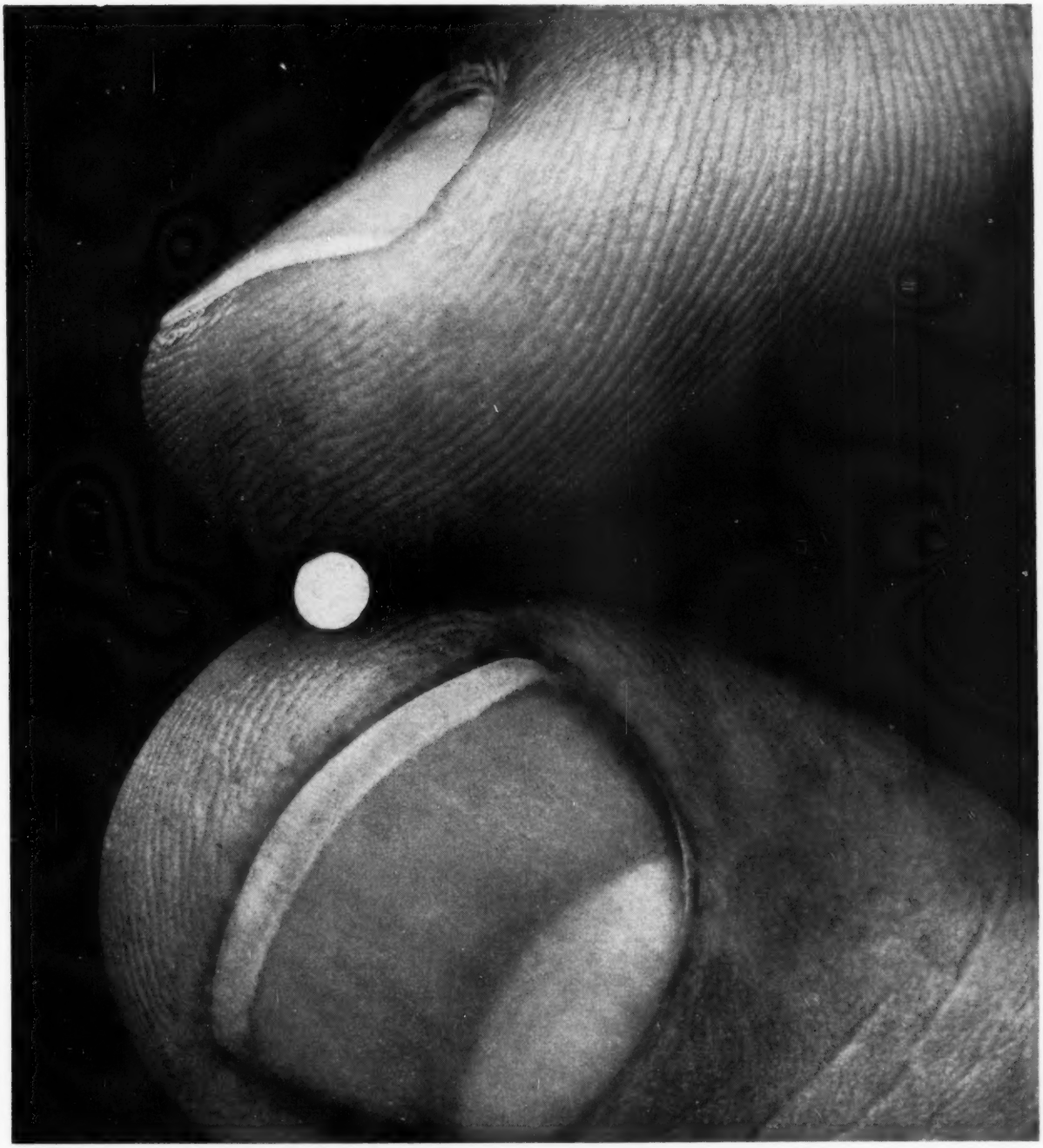
Soil and water conservation practices especially beneficial to wildlife have been made a part of the 1962 National Agricultural Conservation Program approved July 31 by Secretary of Agriculture Orville L. Freeman.

These practices are in addition to other soil and water conservation practices included in the ACP in recent years. Under the program, assistance is provided farmers and ranchers in carrying out needed practices on their farms and ranches.

Wildlife practices will be developed locally in consultation with State wildlife agencies, and will include establishment of wildlife food plots or habitat, ponds and shallow water areas, and other practices which provide substantial soil and water conservation and wildlife benefits.

Under the 1962 Agricultural Con-

(*concluded on page* 48)



From little urea prills big fertilizer profits grow

This remarkable urea prill, produced by Cobalez of Belgium, is probably the most economical and efficient source of solid nitrogen material available in the world today.

Belgian urea prills give you a guaranteed 46% nitrogen. The price per unit of nitrogen is comparable with competitive solid materials. What's more, the nitrogen is concentrated in a compact, uniform unit. Result? Excellent distribution. Easier handling. Substantial savings on transportation and storage.

Belgian urea prills are uncoated, yet so skillfully made they contain less moisture than coated material. They're free flowing; there's no dust problem. And you get maximum solubility (you can dissolve 880 pounds in 100 gallons of water at 68°F.).

Is it any wonder H. J. Baker goes 3,000 miles to get them?

You can buy Belgian urea prills in America right now. In quantity. With fast delivery assured. As the first step in seeing how much better they can do the job for you—and how much bigger they can make your profits grow—send for a free sample and complete information. Simply write to the H. J. Baker office nearest you.

H. J. Baker & Bro., Inc.

733 Third Avenue, New York 17, N. Y.

Branch Offices: 208 South LaSalle Street, Chicago, Illinois • 501 Jackson Street, Tampa, Florida • 361 East Paces Ferry Road, N.E., Atlanta, Georgia.

Est. 1850

servation Program authorized by Congress, farmers may receive assistance averaging about one-half the cost of carrying out such conservation practices as establishing and improving vegetative cover of grasses, legumes, or trees for soil protection, installing erosion control structures, and practices for the conservation or more efficient use of water.

As authorized by Congress, a total of $250 million will be made available through the program to assist farmers and ranchers in carrying out needed conservation measures on farms and ranches. The program has been operated at this level since 1954.

The Secretary said that over a million farmers and ranchers currently are participating in the cost-share program, and he urged all farmers and ranchers to use the 1962 Agricultural Conservation Program in furthering conservation work on their lands.

Escambia Sets Sales Plan To Market Own Nitrogen Products

Escambia Chemical Corporation held a four-day sales meeting at its Pensacola plant July 10 through July 13, when plans were revealed for marketing the firm's nitrogen products through its own sales force.

R. U. Haslanger, president, keynoted the meeting by tracing the rapid development of Escambia since it began operation in 1955 and announcing the corporation's most successful year in 1960.

Emphasizing that Escambia is constantly on the lookout for improvement of present products and the development of new ones, Mr. Haslanger pointed out that the firm is spending about 5% of its net sales dollar on research.

John B. Clopton, vice president and director of sales, announced plans for expanding the area now served by Escambia. The new territory will include Mississippi, Arkansas, Louisiana, Texas, Missouri, Tennessee, Kentucky, and the Carolinas.

James A. Hunter, nitrogen sales manager, told of the corporation's marketing plans and introduced six new members of the sales staff:

Fred C. Broadway, formerly a division sales manager for International Minerals and Chemical Corporation, was announced as division sales manager with headquarters in Montgomery.

Ralph F. Allen, formerly with American Cyanamid Company, was announced as sales representative for Florida.

Rudolph J. Childre, previously with Swift & Company, was named sales representative in southwest Georgia and north Florida, headquartered at Albany, Ga.

Robert M. Harding, formerly with The Goyer Company and for 10 years president of The Valley Fertilizer Company, Greenville, Mississippi, was announced as sales representative for Mississippi, Arkansas, Louisiana, and west Tennessee.

James M. Sullivan, previously with the Chilean Nitrate Sales Corporation and the Harley Bag Company, was named sales representative for south Alabama and west Florida.

Frank Salter, formerly with Ashcraft-Wilkinson Company, was named sales representative for south Alabama and south Mississippi.

James A. Bentley, Jr., who joined Escambia after a number of years in sales and traffic work, was introduced as sales correspondent, with Atlanta as his headquarters.

Mr. Hunter announced at the meeting that additional sales representatives are being added to cover other areas as rapidly as qualified personnel can be obtained.

Roland C. Rayburn, product manager for direct application solutions and ammonia, told of the company's plans for increasing the number of distributor stations throughout the territory. Pointing to a 504% increase in the use of D.A. solutions in the United States from 1955 through 1960, Mr. Rayburn stressed that this relatively new field offers one of the greatest opportunities in the fertilizer business.

James H. Paul, product manager for fertilizer raw materials and Ammo-Nite solid ammonium nitrate, announced to the group that constant product development has resulted in Ammo-Nite prilled ammonium nitrate that is "the finest on the market by any measure you want to make."

Both Mr. Rayburn and Mr. Paul have been with Escambia since the company began its production of nitrogen products.

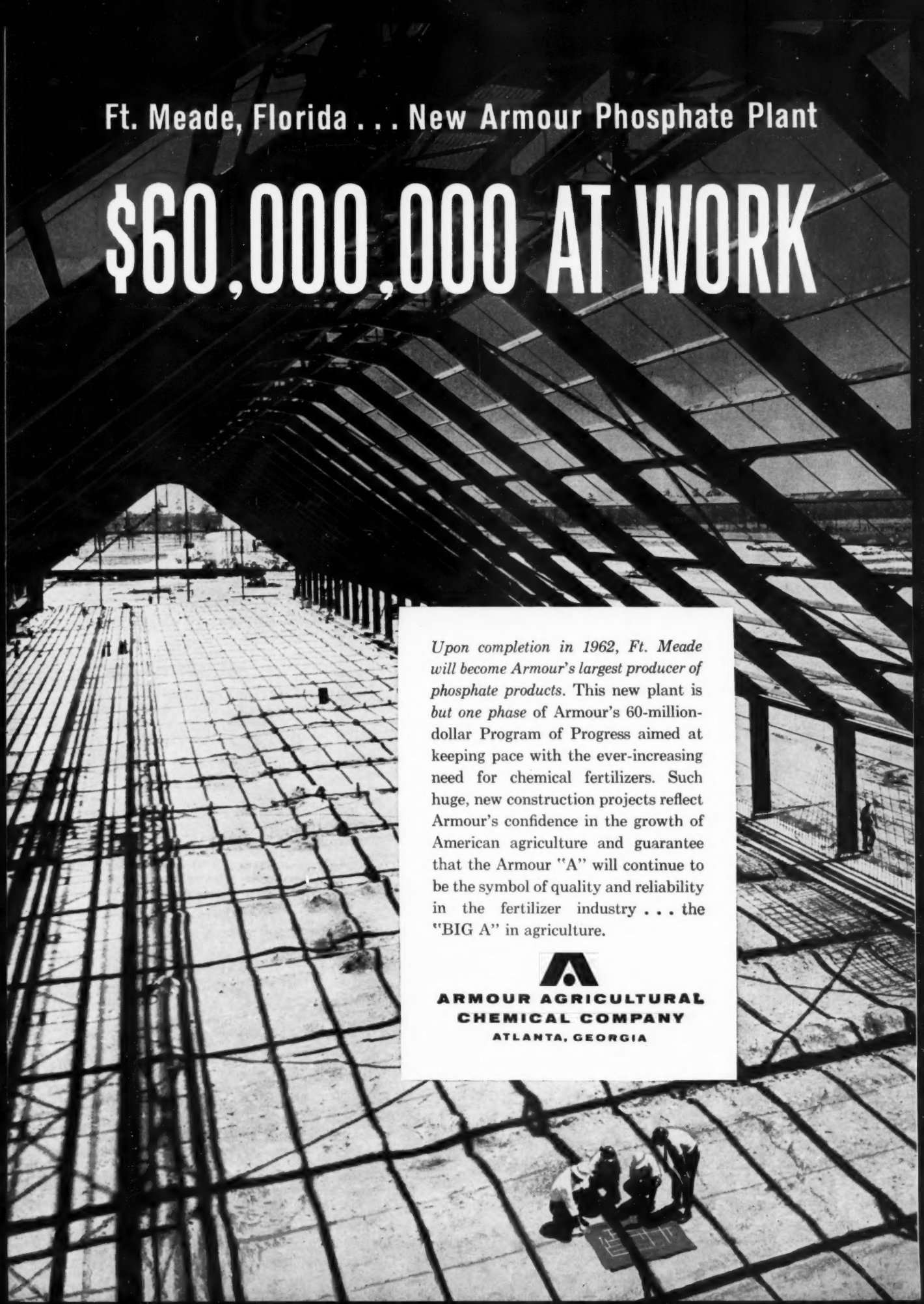
The company's present and future advertising and promotional plans were discussed at the meeting by Robert C. Lowe, Jr., partner of Lowe & Stevens, advertising agency for the firm's nitrogen products.

A. E. New, vice president in charge of production, and eight Pensacola department heads presented comprehensive accounts of the company's operations at the multi-million dollar Pensacola plant.

A highlight of the meeting was an afternoon golf tournament held for sales and plant personnel at the new Scenic Hills Country Club. The event was won by Fred C. Broadway, who shot a 75 over the par 72 course.

Escambia Chemical Corporation announced on July 1 that it would handle the sale of all nitrogen products by its own sales force, effective that date. The meeting was held to acquaint the new sales staff with the company facilities, products, and plans.

Sporting specially designed caps bearing the Escambia trademark, Escambia sales personnel went through a comprehensive four-day sales and training program at the firm's Pensacola plant in July, shortly after Escambia began handling the sales of its nitrogen products. Seen below are (left to right): R. U. Haslanger, president; Robert M. Harding, sales representative; James M. Sullivan, sales representative; James H. Paul, product manager; Frank Salter, sales representative; Fred C. Broadway, division sales manager; Roland C. Rayburn, product manager; Rudolph J. Childre, sales representative; James A. Hunter, sales manager for nitrogen products; James A. Bentley, sales correspondent; John B. Clopton, vice president and director of sales; and Ralph F. Allen, sales representative. Theme of the meeting was "Tee Off" and the group did manage to get away for an afternoon golf tournament.


Ft. Meade, Florida . . . New Armour Phosphate Plant
$60,000,000 AT WORK
Upon completion in 1962, Ft. Meade will become Armour's largest producer of phosphate products. This new plant is *but one phase* of Armour's 60-million-dollar Program of Progress aimed at keeping pace with the ever-increasing need for chemical fertilizers. Such huge, new construction projects reflect Armour's confidence in the growth of American agriculture and guarantee that the Armour "A" will continue to be the symbol of quality and reliability in the fertilizer industry . . . the "BIG A" in agriculture.
ARMOUR AGRICULTURAL CHEMICAL COMPANY
ATLANTA, GEORGIA

SUPPLIERS

report on

new equipment, new materials, new supplies, new processes ... free literature

New Tractor-Drawn Spreader

The Tyler Manufacturing Company has announced a brand new innovation in fertilizer spreading—the 'sensational' F2-B Tractor-Drawn Spreader with high load capacity.

An outstanding feature of this new spreader is a 'Dial-A-Matic Metering System' which is so simple that a child can set the rate of application.

Performance characteristics of the Tyler line are retained in the new F2-B, and the design and features are said to be revolutionary in the industry.

Other 'plus' features include a 10-inch heavy-duty stainless steel conveyor, a wider body for greater capacity, improved gusseting, a lower profile, tubular frame for greater strength and expert craftsmanship to insure rugged strength and durability.

Optional equipment for superior flotation are 11:50 x 16 22 ply Nylon Aircraft Tires.

For additional information, circle number 1 on CF's Information Service card, page 51.

Plastic Coating Bulletin

A four-page bulletin describing Pfaudlon 301, a medium priced, corrosion resistant plastic coating for metal, is now available from The Pfaudler Co., a division of Pfaudler Permutit Inc., specialists in corrosioneering and fluid handling equipment. According to the bulletin, Pfaudlon 301 which is a sprayable coating of Hercules Penton in water solution, has many areas of application in the process industries. It can be used as an exterior coating to protect against acid spillage or corrosive ambient atmosphere; or an interior product contact coating for protection against corrosive attack by most acids, alkalies and salts plus many solvents to 210°F.

The new bulletin tabulates recommended service and typical equipment applications as well as base metals to which Pfaudlon 301 has been successfully applied. A complete list of physical characteristics is also included.

The new bulletin includes a list of Pfaudler licensees who are authorized to custom coat existing equipment in the field.

Copies of the new literature, Bulletin 1007, may be obtained by circling number 2 on CF's Information Service card, page 51.

Liquids-to-Solids Proportion

B-I-F Industries has just issued 'It's A Fact' data on the problem of proportioning liquid to solid ingredients. This new data, accompanied by pertinent bulletins, describes the accurate and economical solution of proportioning problems by combining units from B-I-F's complete line of equipment for dry and liquid feeding, continuous weighing and flow metering.

The two-page data sheet and accompanying bulletins featuring the Model 36-02 Belt Weigher and Model EDB Blender, contain illustrations, schematic diagrams of a typical installation, dimensions and a thorough description of the operation, uses and advantages of B-I-F equipment for proportioning applications.

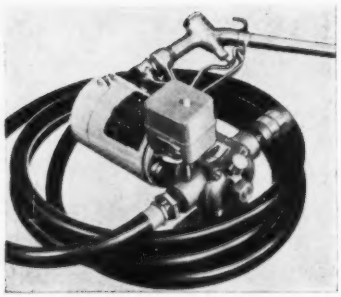
For your free copy of the 'Facts' on proportioning liquids to solids, circle number 3 on CF's Information Service card, page 51.

Disposable Plastic Gloves

New disposable plastic gloves are now available from Busse Plastics Co. at 3½c each. These thin, strong gloves made of acid resistant poly are prepowdered to be slipped on

easily. They have exceedingly fine welded edge seams and are exceedingly thin so the wearer need not lose the sensitiveness of touch. They eliminate the need to reprocess rubber gloves and save repeated wash-ups.

Samples are available by circling number 4 on CF's Information Service card, page 51.



Electric Transfer Pump

Automatic electric powered speed and convenience for on-the-job refueling of motorized equipment (bulldozers, shovels, combines, etc.) from a pickup truck becomes a reality with the new 6 or 12 volt DC, battery operated 'Spee-D-Filler' pumping unit announced by the Jerome Simer Company.

The self-priming, bronze 20 GPM pump has a pressure switch set at 10-20 lbs. When the discharge nozzle is opened, delivery starts instantly. When the nozzle is closed, the motor stops, conserving battery power.

The manufacturer also recommends 'Spee-D-Fillers' for field transfer of sprays, agricultural chemicals, or other water-like liquids. Stainless steel models are available for pumping chemicals that damage bronze.

For full information, circle number 5 on CF's Information Service card, page 51.

Dry Processing Equipment

An eight-page bulletin on Sturtevant Dry Processing Equipment now is available from Sturtevant Mill Company. The literature discusses the company's full line of laboratory and production equipment.

The literature includes information on crushers, grinders, pulverizers, micron-grinders, air classifiers, granulators, blenders, mixers, feeders, screens, elevators, conveyors and mechanical dens and excavators.

For your free copy of the new Sturtevant bulletin, circle number 6 on CF's Information Service card, page 51.

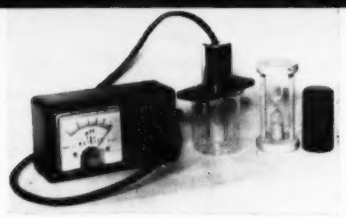
Bucket Elevators, Legs

The complete line of steel self-supporting elevator legs and industrial bucket elevators manufactured by Huss & Schlieper is featured in a new eight-page, two-color catalog released by this firm.

The new catalog details the special features of Huss & Schlieper's line of elevator legs and the Rex-Rated Standard Industrial Bucket Elevators which are designed by Chain Belt Company and manufactured by Huss & Schlieper.

Specification and dimension drawings of all of these elevators plus a complete listing of accessories are included in this new publication.

For a copy of this new catalog, circle number 7 on CF's Information Service card, page 51.



Portable pH Meter

Kel Instruments Co. announces introduction of a new type pH Meter to test the acidity of semi-solid matter or liquid and for field checking the pH at any stage of manufacturing process.

It is described as a scientific instrument with a high degree of reliability and accuracy for getting results quickly by following simple procedures and instructions.

This extremely sensitive new pH meter is portable, size 2½" x 5½" x 6", and weighs only two pounds. It comes in a leather case with carrying handle.

To test for pH, metal rods are inserted in liquid or semi-solid matter, and an answer will be obtained in 2 to 3 minutes with amazing accuracy. It requires no electric current or battery and no chemicals to refill. It is complete and ready to use all by itself and will operate for a long time with satisfactory results.

For full particulars, circle number 8 on CF's Information Service card, page 51.

New Bucket Elevator

Universal Hoist Company has announced the Model DD 6000 Bucket Elevator for high-capacity material handling.

The Universal Model DD elevates 150 tons per hour of material weighing 40 pounds per cubic foot at 85% bucket filling. Capacities of 7440 cubic feet per hour at 85% bucket filling are obtained at a belt speed of only 400 feet per minute, resulting in less wear, less maintenance, longer life and more efficiency. Units are available self-supporting to 150 feet.

The Model DD features two rows of steel buckets on 21" wide nylon belting. Heavy gauge materials are used throughout. Some accessories available for the Model DD are service platform, ladder, hopper, motor bracket and optional drives.

For free literature and specifications circle number 9 on CF's Information Service card, page 51.

'Fibercast' Pipe Booklet

A new piece of descriptive literature about Fibercast pipe has been issued by Fibercast Company, a division of The Youngstown Sheet and Tube Company.

Fibercast is a centrifugually cast, thermoset epoxy resin, glass fiber reinforced pipe developed to handle special pressure and corrosion problems.

The 16-page book provides technical and specification data in detail. Included are tables setting forth chemical resistance data, specifications for chemical and oil field pipe and down-hole well tubing, and charts relating to Fibercast line pipe and tubing. General engineering data also is included.

The new booklet may be secured by circling number 10 on CF's Information Service card, page 51.

Takeup Booklet

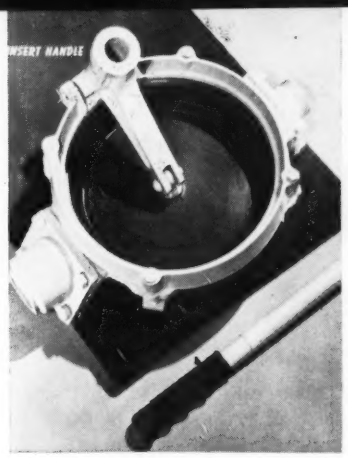
Link-Belt Company's complete line of takeups, in seven frame styles and equipped with sleeve, ball or roller bearings, is described in a new 16-page Book 2741, 'Takeups.'

Since no one takeup frame can meet all application requirements, Link-Belt offers a variety of frames, each for a particular kind of mounting or shaft arrangement. The new publication lists more than 320 different takeup units, designed to provide an easy, positive means for adjusting head or foot shafts on conveyors or elevators.

Babbitted and bronze sleeve bearing takeups are ideal for use in corrosive atmosphere, high temperature and shock loading conditions. The many features of ball and roller bearing takeups, as pointed out in the new book, include inbuilt ability to compensate for shaft misalignment.

Book 2741 contains descriptions of the company's complete line of takeups, including the new LC and LH multi-bearing frames designed for direct mounting of a large variety of ball, roller, babbitted or bronze pillow blocks. Complete information for selection and application with dimensional data for each frame is given.

A copy of the new book can be had by circling number 11 on CF's Information Service card, page 51.



Gallon-per-Stroke Hand Pump

Since hand power is cheaper and faster than mechanical power on many smaller pumping jobs, Protek Specialty Co. is offering a new self-priming hand pump that sets up fast and easily delivers 30 gallons per minute. It lists for $58. For corrosive use such as fertilizer or acid transfer, the pump can be furnished with an interior plastic coating at slight extra cost.

This high-capacity hand pump will move water, chemicals, petroleum products, sewage; it has many uses in farming, construction, plumbing, boating and general industry. Because it can handle a high percentage of solids, it is good for pumping muddy water, slurries and septic tanks.

The new product is of cast aluminum with Neoprene diaphragm and valves. It weighs 20 lbs., including handle and base.

For full details, circle number 12 on CF's Information Service card, page 51.

Valve Bag Packers

Black Products Company has issued a new catalogue, 'Engineered from Experience' which describes their complete line of valve bag packers. Illustrations and descriptive information is included to show their expanded line of packers which have been designed to meet demands of new products and production methods for valve bag packing.

For a free copy, circle number 13 on CF's Information Service card, page 51.

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- *NEW MATERIALS*
- *NEW PROCESSES*
- *NEW SPECIFICATIONS*

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9-61

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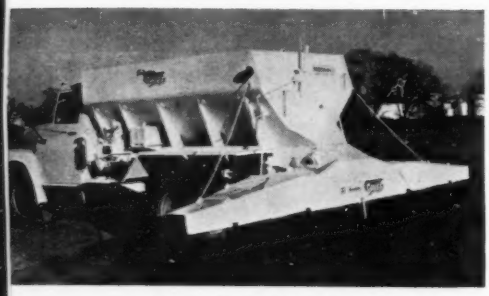


New Spreading Hood Design

A new lightweight, yet extremely durable, fertilizer spreading hood is now available from Henderson Manufacturing Company, for all 'Chief' Spreaders. The new 'Chief' hood is easily folded and latched securely for highway travel and spreads over 24' wide when unfolded for application. Rugged nylon-reinforced hood rubber curtains minimize wind blowing of valuable plant food. All hood sections are specially undercoated to prevent rust and corrosion.

For complete information, circle number 14 on CF's Information Service card, page 51.

Material Level Control

New Flo-Tronics Flo-Level Model L201 bulletin illustrates and describes this new material level control. This unit may be used with liquids, bulk dry or semi-dry materials in bins, tanks, hoppers or other containers. It is quickly and easily mounted in any position. Bulletin gives specifications and dimensions.

For your copy, circle number 15 on CF's Information Service card, page 51.

Line Diverter Valves

New literature is available on a line of two-way precision-engineered Line Diverter Valves, manufactured in either cast iron or aluminum. The line of valves can be furnished in seven basic types, to operate either automatically or manually. Their design permits constant flow without change of velocity—no sharp flow direction changes — pressure loss maintained at a minimum. Dimensional drawings and structural model information are included.

For full information from Systems Engineering and Manufacturing Company, circle number 16 on CF's Information Service card, page 51.

New Tractor-Shovel Unit

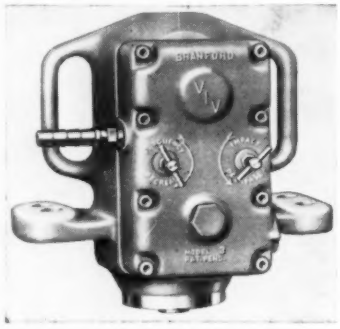
The Frank G. Hough Co. has announced a new, improved series 'B' version of their H-30 four-wheel-drive 'Payloader' tractor-shovel.

This unit, although still the smallest in their four-wheel-drive line, is now equipped with a 1¼ cubic yard bucket, which adds 25% more capacity. At the same time, according to the manufacture, the exceptional balance and stability of the original H-30 has been retained.

This new 'Payloader' is available with either gasoline or diesel power. For complete data and specifications on the H-30B model, circle number 17 on CF's Information Service card, page 51.

Variable Impact Vibrator

A new development in pneumatic vibrators—the 'Vibrajust' Variable Impact Vibrator — which offers changes of impact and frequency independently of each other or together, has been announced by The Branford Company. Control of impact and frequency is an integral part of the V.I.V. Model 3. In addition to self-control, the outstanding feature of the V.I.V. is its ultra high impact amplitude. Because it



has exceeded 20,000 g's in acceleration tests, it is safely said that the kinetic energy of the Vibrajust V.I.V. is up to 10 times that of a conventional vibrator, yet it only consumes 1/6th to 1/50th the amount of air.

Applications will be in materials handling for moving powdered or granular materials in bins and hoppers, where low frequency and high impacts are required — and where low air consumption is a distinct advantage, along with control of impact and frequency. The frequency range is between 1 and 500 vibrations per minute, and the V.I.V. will operate in any plane. A standard adapter is available for attaching to the V.I.V. This unit is then bolted or welded to the apparatus to be vibrated.

For further technical and price information, circle number 18 on CF's Information Service card, page 51.

Self-Cleaning Magnetic Separator

Bulletin 1206B-N describes the Dings Self-Cleaning Perma-Plate. The fully automatic tramp iron separator is available in three types for suspending over conveyors, chutes or spouts.

The literature describes how the unit separates tramp iron from the burden by magnetic attraction — without manual attention for cleaning.

These new features are cited by the manufacturer: Deflector plate deflects conveyor burden surge from cross belt to precent stoppage; Permanent, non/electric magnets are fully enclosed in welded stainless steel housing; Gear head, motor and drive is enclosed; Belt facing and cleats on 3-ply Fabreeka crossbelt are non-magnetic; Unitized construction makes the unit self-contained ready for mounting, and use without extensive installation requirements.

For a copy of Bulletin 1206 B-N, circle number 19 on CF's Information Service card, page 51.

Drop-Bottom Ribbon Blender

A series of drop bottom ribbon blenders, permitting complete discharge the moment the optimum quality blend has been achieved, are being offered by Munson Mill Machinery Co.

These models of the Munson ribbon blender are designed to enable users to achieve the advantages of economic, quick, thorough ribbon mixing of blends which must be dumped at the critical point—before overmixing begins to break down the blend quality.

Drop bottom discharge gates can be as large as the entire bottom of the blender drum. Or they are available for smaller openings.

For other applications, center slide gates, end-located slide or paddle gates, and iris gates for metered discharge also are offered.

Each Munson ribbon blender employs an all-welded twin steel spiral

ribbon assembly. One moves the batch from right to left, the other from left to right; both keep the whole mix in constant rotary motion. Ribbon assemblies are constructed to allow maintenance men to easily remove the entire agitator assembly.

Further information may be obtained by circling number 20 on CF's Information Service card, page 51.

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Commercial Fertilizer and Plant Food Industry

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Potash Deliveries Show Decrease For 1960-61 Year, Also for Half-Year

Deliveries of potash for agricultural purposes in the United States, Canada, Cuba, and Puerto Rico, by the eight American potash producers and importers totaled 3,623,298 tons of salts containing an equivalent of 2,100,015 tons K_2O during the fertilizer year of July 1960 through June 1961, according to the American Potash Institute. This was a decrease of over 15% in salts and 16% in K_2O under the preceding fertilizer year.

Continental United States took 1,962,055 tons K_2O, Canada 86,284 tons, Cuba 11,227 tons, Puerto Rico 19,905 tons, and Hawaii 20,544 tons K_2O. These figures include imports of 275,786 tons K_2O for this period, a decrease of 10%. Exports to other countries were 418,335 tons K_2O, an increase of nearly 10%. Deliveries of potash for non-agricultural purposes amounted to 143,163 tons K_2O, a decrease of over 7%, and were 5% of all potash deliveries.

Total deliveries for all purposes were 4,550,991 tons of salts containing an equivalent of 2,661,513 tons K_2O, a decrease of 12% in salts and over 12% in K_2O under the last year.

Illinois with 192,427 tons K_2O was the leading state for deliveries followed in order by Indiana, Georgia, Ohio, Florida, and Virginia. (Deliveries do not necessarily correspond to consumption in a given state.)

Muriate of potash was the principal grade, comprising 93% of the total agricultural potash delivered. Of the muriate, standard grade was 1,287,910 tons K_2O, while granular muriate was 1,054,548 tons, a decrease of over 18% in the standard and 7% in the granular grade under the preceding fertilizer year.

Sulphate of potash and sulphate of potash-magnesia accounted for 7% of agricultural deliveries.

First Half of Calendar Year

Deliveries of potash for agricultural purposes in the United States, Canada, Cuba, and Puerto Rico by the eight American potash producers and importers totaled 2,085,775 tons of salts containing an equivalent of 1,211,310 tons K_2O during the first six months of 1961 according to the Institute. This was a decrease of over 13% in salts and over 14% in K_2O under the same period in 1960. Continental United States took 1,143,724 tons K_2O, Canada, 44,078 tons, Cuba, none, Puerto Rico, 14,801 tons, and Hawaii 8,707 tons K_2O. These figures include imports of 153,600 tons K_2O for the first six months of the year, an increase of 2% over last year. Exports to other countries were 180,408 tons K_2O, a decrease of 5%. Deliveries of potash for non-agricultural purposes amounted to 74,329 tons K_2O, a decrease of 10% under last year. Total deliveries for all purposes were 2,506,811 tons of salts containing an equivalent of 1,466,046 tons K_2O, a decrease of about 13% in salts and K_2O.

Second Quarter 1961

During the second quarter of 1961, deliveries for agricultural purposes were 535,925 tons K_2O in Continental United States, 18,842 tons in Canada, none in Cuba, 4,693 tons in Puerto Rico, and 4,086 tons in Hawaii, making a total of 563,546 tons K_2O. Included in these figures are imports of 56,582 tons K_2O. Exports of potash to other countries during the second quarter were 82,492 tons K_2O. Deliveries of potash for non-agricultural purposes were 36,906 tons K_2O. Total deliveries for all purposes were 1,167,010 tons of salts containing an equivalent of 682,944 tons K_2O.

CF Staff-Tabulated TONNAGE REPORTS

FERTILIZER TONNAGE REPORT (in equivalent short tons) Compiled by Cooperating State Control Officials and Tabulated by COMMERCIAL FERTILIZER STAFF

	July		June		April-June Qtr.		January-June		July-December		YEAR (July-June)	
STATE	1961	1960	1961	1960	1961	1960	1961	1960	1960	1959	1960-61	1959-60
Alabama	23,054	16,645	78,341	86,558	548,583	612,918	812,241	869,240	181,587	180,959	993,828	1,050,199
Arkansas	22,004	20,558	51,257	42,378	217,881	204,314	312,038	303,835	61,633	58,713	373,671	362,548
Georgia	95,429	83,684	259,366	226,167	1,063,441	947,923	1,202,510	1,102,220	313,241	299,194	1,515,751	1,401,414
Kentucky	------	10,484*	56,691	43,505	288,920	319,164	459,375	461,786	102,192	108,734	561,567	570,520
Louisiana	11,357	13,765	29,694	29,603	147,176	150,438	220,340	224,087	73,814	66,744	294,154	290,831
Mississippi	15,823	17,671	64,760*	n/a	349,135	374,717	550,528	545,423	145,632	144,374	671,918	689,797
Missouri	------	17,313*	------	72,253*	------	434,606*	------	524,336*	334,657	277,708	------	802,044*
N. Carolina	------	14,355*	112,231	113,740	870,935	988,133	1,371,080	1,381,263	202,694	175,533	1,573,774	1,556,796
Oklahoma	------	6,545*	12,440	11,213	51,411	52,726	87,844	72,246	94,690	72,511	182,534	144,757
S. Carolina	17,650	11,122	56,607	53,388	305,326	411,739	693,165	678,986	110,096	104,903	803,261	783,889
Tennessee	------	17,626*	40,968	45,157	317,830	353,905	467,997	482,980	124,747	117,275	592,744	607,727
Texas	------	34,355*	79,550	92,452	308,879	281,701	531,678	474,626	234,376	233,410	766,056	708,037
California		(reports compiled quarterly)			480,241	462,857	835,001	813,116	462,347	465,495	1,297,348	1,278,611
Virginia		(reports compiled quarterly)			------	369,502*	------	591,113*	168,479	141,177	------	732,290*
Indiana				(reports compiled semi-annually)			797,711	828,164	317,372	321,956	1,115,083	1,150,120
TOTAL	**185,317**	**163,445**	**777,145**	**744,161**	**4,949,758**	**5,160,535**	**8,341,508**	**8,237,972**	**2,927,557**	**2,768,686**	**10,741,689**	**10,595,236**

------ (not yet reported) * Omitted from column total to allow comparison with same period of current year.

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—of This and That . . .

——W. Harold Schelm, executive secretary of National Fertilizer Solutions Association, Peoria, Illinois, has been admitted to membership in the American Society of Association Executives. Membership in ASAE gives him recognition as a "key" manager among the nearly 2,000 association executives in the Society, who, collectively, represent more than 1,500 important business, industrial and professional associations throughout the United States and many foreign countries.

Mr. Schelm was one of the men who helped form the present association, and was selected as the organization's executive secretary in April of this year. Prior to this, he headed his own manufacturing company which built tanks and application equipment used by the industry he now represents.

——Adrian H. Van Kampen, controller-chemical industries, Armour & Co., has been elected vice president of the Chicago Control of the Controllers Institute of America . . . At the annual meeting of the Institute's Richmond Control, Edward R. Adams, vice president-finance, Virginia-Carolina Chemical Corp., was chosen treasurer. Established in 1931, the Institute is a non-profit management organization of controllers and finance officers from all lines of business. The total membership exceeds 5,200.

——According to an AP report, 500 scientists employed at American Cyanamid's research laboratories in Stamford, Conn. were stumped for an answer recently when they received this letter from a third grader: "Gentlemen," it said. "Please send me all the material you have on chemistry."

——Five leaders in New Mexico B.P.O.E. affairs left Carlsbad by plane recently as guests of International Minerals & Chemical Corporation on their trip to the national convention at Miami, Florida. The International plane, stationed in Lakeland, Florida, was made available through the cooperation of Floyd B. Brown, Florida, general manager of IMC's Florida Phosphate operations, and E. C. Skinner, operations manager, Carlsbad. IMC pilot was Charles B. Lawson. Returning from Miami, the group were guests of the company at their mining and refining operation at Bartow, Florida. Mr. Skinner stated that this tour was arranged to express the firm's high regard for the great humanitarian work performed by the Elks in the many communities in which IMC operates.

——We got a laugh reading the report last month of the Montreal (Canada) meeting of international scientists at the International Congress of Pure and Applied Chemistry. In response to the ominous question, "Will pesticides get us before the H-bomb?" Dr. Henry Hurtig, director of research, Canadian Department of Agriculture, said "We are investigating residues from the insecticides in terms of parts per million. Relatively speaking, it's like having a tank car full of gin and adding an eye dropper full of vermouth." . . . . whoop-de-do.

——Monsanto Chemical Co. was honored last month by officials and businessmen of Columbia and Maury County, Tenn. for 25 years active service to the community as an employer and as a good citizen. Joseph L. Whiteside, manager of the company's elemental phosphorus plant at Columbia, accepted a scroll from the citizens. Monsanto operates six electric furnaces for production of elemental phosphorus at Columbia employing about 800 persons.

——Soviet industrial research laboratories are finding it no easy matter to compete with Russian universities for the services of scientists and technologists. So far the universities are leading in this race for talent——since they can pay a scientist three or four times as much as he could make doing research for industry. These sidelights are revealed in a recent edition of the USSR's *Ekonomicheskaya Gazeta.* A translation of the article from this paper is included in a collection of material from Russian sources on Soviet science available in English from the Office of Technical Services, Business and Defense Services Administration, U. S. Department of Commerce, Washington 25, D. C.

——Twelve executives of the Japanese chemical industry recently toured Stanford University and Hazelton-Nuclear Science Corporation in a visit sponsored by the International Cooperation Administration making a study of industrial labor relations. Industrial safety and the protection of workers and the general public from chemical hazards are a major activity at H-NSC. Included in the group were representatives from Mitsubishi Chemical Industry Co. and Nissan Chemical Co.

——W. R. Grace & Co. says it has developed a chemical that will preserve fresh flowers for several months.

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PEOPLE in the

V-C

David K. Wilson of Nashville, Tennessee, Aug. 14 was elected chairman of the board of Virginia-Carolina Chemical Corporation, succeeding Justin Potter, who will continue as president and chief executive officer of the 65 year old fertilizer and chemicals firm.

Mr. Potter emphasized that the action "will not change the direction of the company or its management. V-C's expansion in the past couple of years and its plans for future growth have made it desirable for me to share some of my increasing responsibilities, particularly since it is impossible for me to be in Richmond at the company's offices most of the time. Because of his interest in V-C and because of our day-to-day business association, Wilson is the logical man for the job."

He is Mr. Potter's son-in-law and a major stockholder in the company. Mr. Potter and members of his family own a controlling interest in V-C through the Chemical Security Co. Mr. Wilson has served as V-C director since January, 1958.

Chase Bag

The election of Morris E. Lasker to the board of directors of Chase Bag Company has been announced by E. K. Ludington, Jr., company president.

A member of the New York City law firm of Battle, Fowler, Stokes and Kheel, Mr. Lasker will also serve as legal counsel for Chase.

As a Chase director, he succeeds the late Ludlow S. Fowler, who passed away April 12, 1961.

Best Fertilizers

Judd H. Rose has been named advertising manager for the Best Fertilizers Company of Lathrop, California. Lowell W. Berry, Best's president, made the announcement.

Rose

Mr. Rose's responsibilities will include supervision of Best's farm product advertising and dealer co-op program. A native of Boise, Idaho, Mr. Rose is a former account executive for the Givens-Davies Advertising Agency of Boise. He handled farm and industrial accounts, including the Parma Water Lifter Co. He has also worked as production manager for a Boise agency and as advertising manager for a steel fabricator with plants in Boise and Omaha, Nebraska.

Fibercast Division

Two personnel appointments have been announced by Craig Smyser, vice president of Continental-Emsco Company and general manager of its Fibercast division.

Liston

Hutchison

Phillip J. Liston, district sales manager, was named assistant general sales manager in charge of special projects. Marion F. Hutchison has been appointed district sales manager for California, Oregon, Washington and Arizona.

Spencer

Spencer Chemical Company has announced changes in and additions to its financial and corporate officers. John C. Denton, president, said that the new corporate titles, which were approved by the board of directors at its recent quarterly meeting, are designed to identify the functions and responsibilities of these officers.

John P. Miller has been made executive vice president in charge of financial affairs of the company; Eugene W. Morgan was elected vice president and treasurer; James A. Borders was elected secretary; Hubert F. Crawley was elected controller; Joseph R. Hughes was elected assistant treasurer and James G. Dieter, assistant secretary.

Mr. Miller has been associated with Spencer since 1943; Mr. Morgan has been associated with Spencer for the past 15 years; James A. Borders joined Spencer in 1954; Hubert F. Crawley joined them in 1953; Joseph R. Hughes in October, 1947; James G. Dieter joined in 1953.

Richardson Scale

William M. Gay has retired from service with Richardson Scale Company as Omaha District Manager, after 14 years of service, due to ill health. He is succeeded by F. Hilton Norton. New address for Richardson Scale Company in Omaha is: 609 Keeline Building, 319 South 17th Street, Omaha 2, Nebraska.

Davison Chemical

Lawrence W. Galloway, former assistant general sales manager of the Baugh Chemical Company, has joined W. R. Grace & Co. Davison Chemical division as sales manager, fertilizer materials, mixed fertilizer division, it is announced by W. N. Watmough, Jr., vice-president.

Owens-Illinois

Frank M. Cannon, of Tenafly, N.J., has been named assistant Eastern regional sales manager of Owens-Illinois' Paper Products division. Mr. Cannon has been Eastern regional sales manager of the company's multiwall bag division.

Cannon

B. J. Ainsworth, of Fairfield, Conn., sales representative in the Multiwall Bag Division in the New York area since 1956, succeeds Mr. Cannon.

Mr. Cannon, who will continue to make his headquarters in New York, has been associated with the paper industry since 1950. He joined O-I in 1956.

Davidson-Kennedy

Davidson-Kennedy Company, Atlanta, designers and manufacturers of machinery for the vegetable oil mill, fertilizer and textile industries has named Homer Hansen as sales manager. The announcement was made by Thornton Kennedy, president.

Hansen

Mr. Hansen came to Davidson-Kennedy Company from the Cotton Producers Association where he was an engineer and supervised construction of oil mill and fertilizer plants, having previously worked with Combustion Engineering Co., where he specialized in sales to large industrial and chemical plants.

In his new capacity, he will direct sales to the vegetable oil mill and fertilizer industry as well as expanding Davidson-Kennedy's sales to other industries requiring medium and heavy machinery design and manufacturing.

INDUSTRY

Armour

Several personnel changes affecting operations of Armour Agricultural Chemical Company in Nashville and Memphis, Tennessee, and Albany, Georgia, were announced by H. V. Miller of Atlanta, vice president and general manager of the company's fertilizer division:

Robert A. Dillard, formerly plant manager at the Memphis fertilizer operation of the company, has been named plant manager in Nashville. He succeeded George C. York, who retired after 35 years of service with Armour.

Succeeding Mr. Dillard at Memphis is D. D. Spurlock, formerly assistant plant manager there.

The other promotion announced was that of J. P. Henley to credit manager at the company's Albany Division. He had been a salesman for Armour since 1950.

Sulphur Institute

The appointment of Jan Platou as information specialist in its European office has been announced by The Sulphur Institute. Mr. Platou, a native of Norway, joined The Institute on September 1, and is located in London.

Platou

He will have responsibility in Europe for technical information services in support of The Institute's research and educational program relating to agricultural and industrial uses of sulphur in all its forms.

Mr. Platou is a Fellow of The Chemical Society, and holds membership in the Norwegian Engineers Association and the Norwegian Chemical Society.

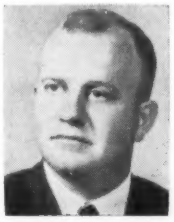
West Virginia University

Dean Ernest J. Nesius has been named director of the West Virginia Agricultural Extension Service. He will serve in a dual capacity, as director of Extension and dean of the College of Agriculture, Forestry, and Home Economics. He was appointed Dean in June, 1960.

Dr. Nesius succeeds J. O. Knapp, who recently retired as director after 44 years on the West Virginia University staff. He will continue his service to the University as special assistant to Dr. Nesius.

APC

Harry L. Carroll has been appointed district sales manager for American Potash & Chemical Corporation, it was announced by W. W. Young, southern regional sales manager.



Carroll

Mr. Carroll, who assumes responsibility for marketing industrial chemicals in the Southeastern area, will continue to make his headquarters in the company's Atlanta regional sales office.

C. L. Straughan continues as district manager in charge of potash and agricultural chemical sales.

General Chemical Division

The appointment of Jack M. Blalock as a manager of heavy chemical sales for Allied Chemical's General Chemical division is announced by Frank J. Woods, director of sales.

Blalock

With the division 14 years, Mr. Blalock will be responsible for sales of aluminum sulfate ("alum") used in paper making and water purification, phosphoric acid for fertilizer production, and sodium phosphates for detergents.

Appointment of six regional sales office managers and five assistant managers for General Chemical Division has been announced by Mr. Woods.

The new sales managers and their offices are:

Arthur H. Baker, New York Metropolitan; Albert B. Connelly, Houston; Harold E. Donaldson, St. Louis; William P. Doyle, Buffalo; Edmund R. Lett, Birmingham; and Wesley G. Webster, Denver.

The new assistant sales managers and their offices are:

Lester I. Adams, New York Metropolitan; Joseph M. Byouk, Chicago; Stephen J. Muller, Los Angeles; Richard J. Regan, Philadelphia; and James E. Strader, Chicago.

IMC

W. W. Chadwick, New York regional sales manager of the Materials Department of International Minerals & Chemical Corporation, has been promoted to manager of merchandising.

In his new job, he will direct sales training, sales compensation and incentives and related activities now performed in the Merchandising Department. In addition, he will assist in the development of marketing programs for the corporate operating divisions and departments.

Mr. Chadwick, who has 19 years of sales and supervisory experience with IMC, will headquarter at IMC's Administrative Center in Skokie, Illinois.

International Paper

John W. Gilbert, Jr., has been named assistant director of research and John A. Lyden, assistant to the vice president in charge of manufacturing of International Paper Company, it was announced by Lamar M. Fearing, president. Both men will make their headquarters in New York City.

Mr. Gilbert will report to Stuart E. Kay, vice president and director of research. Mr. Lyden will report to George T. Ward, recently appointed vice president in charge of manufacturing for the company's pulp, paper and paperboard mills in the United States.

He was twice Manager of International Paper's Mobile Mill, from 1939 to 1948 and from 1955 to 1958, and has also served as manager of the company's mills in Natchez, Mississippi and Georgetown, South Carolina.

Southwest Research

Dr. Harry P. Burchfield has been appointed senior research chemist of the Department of Chemistry and Chemical Engineering of Southwest Research Institute, announces Martin Goland, president.

Dr. Burchfield received his A.B. degree in chemistry and his M.A. in physical chemistry from Columbia College in 1938. In 1956, he was awarded the Ph. D. degree from Columbia University in plant biochemistry.

Dr. Burchfield is the author of over sixty scientific papers. He is co-author of "Biochemical Applications of Gas Chromatography," to be published by Academic Press in 1961.

At SwRI, Dr. Burchfield will be engaged in research in many areas of biochemical problems.

—Industry People...

Dorr-Oliver

The resignation of John V. N. Dorr from the board of directors of Dorr-Oliver Incorporated has been accepted "with great reluctance" by the Dorr-Oliver board, according to an announcement by William L. Oliver, chairman. The board has elected Dr. Dorr "director emeritus". As a director, he had also been honorary chairman of the board.

At the same meeting, the board elected Russell H. Dorr, Washington representative of the Chase-Manhattan Bank, a director of the corporation. Mr. Dorr brings to the board of the worldwide corporation a broad and varied professional background.

Dr. John V. N. Dorr founded The Dorr Company, one of the two principal predecessors of Dorr-Oliver Incorporated. His personal inventions include sedimentation and classification devices now accepted as basic processing tools throughout the metallurgical and chemical industries.

Harold A. Monsor, for the past two years production manager at Dorr-Oliver's Hazleton, Pa. plant, has assumed new duties as director of production—Stamford.

In his new post at the company's international headquarters in Stamford, Conn., he will have administrative responsibility for production and purchasing operations at Stamford, and for the company's manufacturing operations at Englewood, Colorado.

Rowland C. W. Brown has been appointed general counsel for Dorr-Oliver. In his new position, he will direct the legal and patent work for all of the company's divisions and subsidiaries in the U. S. and abroad.

Mr. Brown joined Dorr-Oliver in 1959 and became assistant to the vice president for International Operations shortly thereafter. He was elected secretary of the company in 1960 and treasurer earlier this year. He will retain the latter two posts in addition to his new duties.

Vulcan Containers

Robert B. Newman has been named vice president-director of sales of Vulcan Containers Inc., Bellwood, Illinois, according to an announcement by Gordon D. Zuck, president of Vulcan-Associated Container Companies, Inc.

Newman

For over twelve years he served in executive capacities in the steel industry. In 1959 he joined Vulcan-Associated Container Companies, Inc. at Birmingham, Alabama and served as assistant to the president.

George R. Zies continues as sales manager of Vulcan-Bellwood and will now devote his efforts wholly to sales.

This company is a subsidiary of Vulcan-Associated Container Companies, Inc., with executive offices at Birmingham, Alabama—plants at Bellwood, Ill.; Birmingham, Dallas, Texas; Peabody, Mass.; Toronto, Ontario and Vancouver, B.C. Canada. They also have warehouses at 20 additional locations.

Bemis Bag

F. G. Bemis, Jr., director of allied operations for the Bemis Bro. Bag Company, has been elected a vice-president of the company. He will continue as director of allied operations, which entails responsibility for operation of the company's Visinet Mill, paper specialty and plastic packaging plants. His headquarters will remain at the Bemis general offices in Boston.

Bemis

Mr. Bemis was appointed to the operations position in February, 1960. Previously he served the company for two years as administrative assistant to the vice-president in charge of research and development, and four years as manager of the Bemis bag plant at East Pepperell, Mass. He was elected to the company's board of directors in 1956.

J. T. Braxtan, assistant secretary of Bemis, has been elected secretary of the company. He succeeds Ronald Ramsay, who retired July 31 after 35 years with Bemis.

Mr. Braxtan was elected assistant secretary in February, 1960. He has been with Bemis since 1934.

Ortho Division

J. K. Pellett, supervisor of traffic & transportation for Ortho division, California Chemical Company, has announced appointment of Joseph L. Roye as traffic representative for the new Ortho fertilizer plant at Fort Madison, Iowa.

In his new position, Roye will coordinate traffic and transportation of all supplies, produce, personnel and equipment connected with the huge, new multi-million dollar Ortho fertilizer plant there.

Gordon Black, Southern California district manager for Ortho division, has announced appointment of Richard C. Messer as an Ortho agricultural sales representative for the El Centro area.

Prior to joining Ortho, Mr. Messer had worked three years as a salesman for the Ferry Morse Seed Co., El Centro, and two years with the Pacific Guano Co., Los Angeles.

James P. Hicks, recent graduate from the University of Purdue, has been appointed sales representative for Ortho, district manager W. J. Majure announced. Mr. Hicks will cover his hometown area of Martinsville, Indiana.

R. T. Wallace, Haddonfield, N. J., district manager for Ortho, announced appointment of Charles L. Button as agricultural sales representative for the north Connecticut area.

TVA

Appointment of Dr. Roy D. Bronson as chief, Soils and Fertilizer Research Branch, in the Tennessee Valley Authority's Division of Agricultural Relations at Muscle Shoals, Alabama, was announced by Lewis B. Nelson, manager of the Office of Agricultural and Chemical Development. Dr. Bronson succeeds Dr. George Stanford who resigned to join the Hawaiian Sugar Planters' Association.

Bronson

Dr. Bronson came to TVA from Honduras where for the past year and a half he was in charge of soils and chemistry work for United Fruit Company's Division of Tropical Research. He formerly was associate professor of agronomy at Purdue University, and was on leave from that post while in Honduras. Prior to joining the Purdue staff he was soils technician for Green Giant Company.

A native of Nevada, Dr. Bronson received his B.S. degree in agricultural engineering and M.S. in soils from Michigan State University. He earned his Ph.D. in soil fertility at Purdue.

IN-PLANT SHRINKAGE

(*continued from page* 31)

(4) Product conveyed to storage. (5) Product conveyed to bagging and/or bulk loading facilities. (6) Shipping.

Materials handling equipment accounts for a major portion of plant losses. As raw material moves from car to plant, the first spillage is from the front-end loader This spillage loss is caused by any or all of the following: overloading; excessive speed; poor routing; inexperienced handling; poor attitude about the job.

Losses can occur due to operator filling scoop to capacity, probably to save time and maintain maximum production. Steep inclines, sharp corner and other hazards add to sources of loss. Corrective measures can help a lot to eliminate spillages, for example: use of a training program; shortening the routing of materials; installing an effective housekeeping program; putting on additional labor or adding equipment; and noting causes of conveyor spillages and making corrections.

As to conveyor spillages, the following corrections are suggested: eliminate sharp inclines; use rubber or canvas skirts at feed points; repair or replace worn belting; select adequately sized belts; interlock belt drives with feed and discharge equipment; align head and tail pulleys; and use self cleaning scrapers if handling moist or sticky material. (*Mr. Powell's comments have previously been published in* CROPLIFE, April, 1961.)

SUMMARY

Losses of plant food in processing fertilizers can be an important factor in cost of operation.

Operators of granulation units anticipate higher nitrogen losses; they report allowances in their formulations averaging about 3.4% of the total nitrogen guarantee as an anticipated loss; and they report an average loss of 1.5% nitrogen as unintentional loss.

Dust losses contribute only a minor part to the over-all material loss in granular as compared with non-granular plants. This is indicated in the data relating to phosphates and potash which must be lost as dust in dryers, coolers and ammoniators. In non-granular plants the over-all loss in phosphate and potash averaged 2.15%; in granular plants, phosphate average losses amounted to 2.85% and potash losses to 2.54%. Apparently the major problem in granular plants is concerned with losses in nitrogen chiefly as ammonia, smoke and fumes.

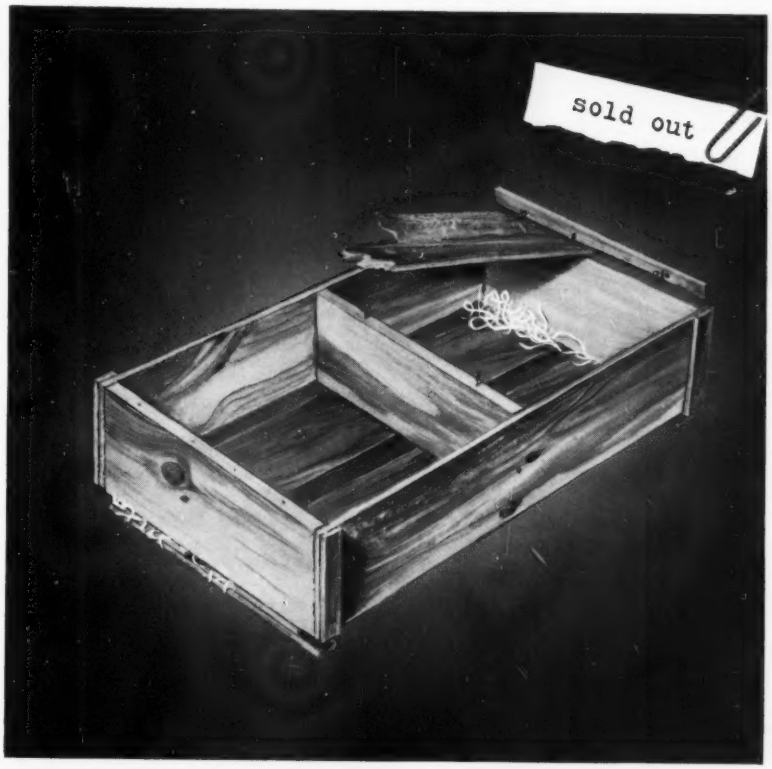
Plants and companies vary widely in reported losses particularly with respect to nitrogen, due largely to differences in formulating policies: these involve use of higher percentages of anhydrous ammonia versus solutions and solids and higher rates of ammoniation of phosphates.

Based on the reports in the Survey, granulating plants lose on average from 4% to 6% of the nitrogen; 2% to 4% of the phosphate; and 2% to 3.5% of the potash input. Plants producing non-granular fertilizers lose on average from 1.5% to 3% of the nitrogen; 2% to 3% of the phosphate and 2% to 3% of the potash input.

Spencer Will Premix Blasting Material

Nitro-carbo-nitrate, a widely-used, low-cost component in blasting materials will be manufactured in a plant now being constructed by Spencer Chemical Company in Carlsbad, New Mexico.

The new Carlsbad plant will perform the operation of mixing ammonium nitrate with carbonaceous material, normally done at or near the blasting site, and will package the mixture in 50-pound bags primarily for use in underground mining of potash ores in the nearby Permian Basin.



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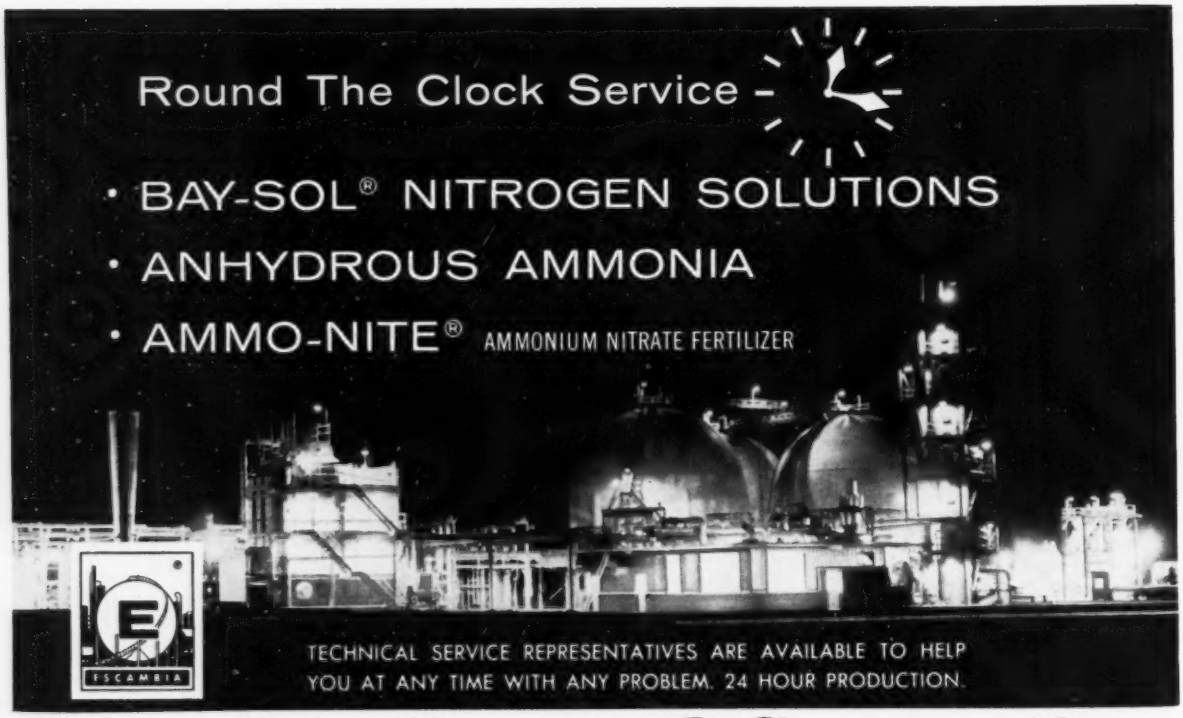
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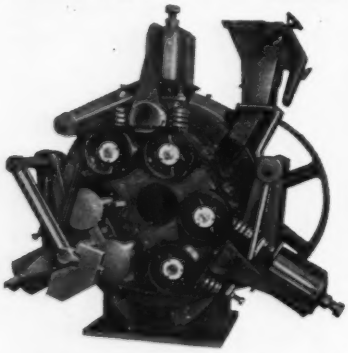

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Association Activities

Regional Fertilizer Conferences

Southeast Meeting October 5-6

The Atlanta Biltmore Hotel, Atlanta, will be the scene of the sixth Southeastern fertilizer conference Oct. 5-6, built on the general theme: "Expanding the fertilizer market." The first general session, presided over by G. A. Burson of Cotton Producers Association will begin at 2:00 p.m. on October 5th, following registration which starts at 1:00 that day.

"Expanding with County Programs" will be handled by two county agents: Tom McCutcheon of Tennessee's Obion County and Tom McCabe from Montgomery, Alabama.

"Expanding with Dealer Education" will be presented by TVA's Ralph Wehunt of Wilson Dam, Ala.

The morning of the second day will be devoted to "Looking Ahead in Southern Agriculture"—to be presented by three speakers: "Research Points the Way" by Clemson's Dr. U. S. Jones; "The Changing Role of Extension" by Federal Extension Service director Dr. E. T. York; "The Industrial Revolution" by NPFI's W. R. Allstetter.

The Southern Extension Agronomists and Southern Soil Research Committees will hold their meetings the afternoon of October 4 and the morning of October 5.

Full information is available from NPFI's Southern Regional Director, Dr. R. L. Beacher, 1220 Healey Bldg., Atlanta 3, Ga.

Northeast Meeting October 12-13

Plans are nearing completion for the annual Northeast Fertilizer Conference to be held October 12-13 at the Schine Inn, Chicopee, Massachusetts, Dr. Merle V. Adams, Northeast regional director for the Institute, has announced.

The speakers are as follows:

Thursday afternoon, October 12: Dr. Herbert Albrecht, director, Pennsylvania Agricultural Extension Service, on "The Future of Northeastern Agriculture and its Effect on the Fertilizer Industry"; Derl I. Derr, assistant secretary, The American Bankers Association, on "Financing Northeastern Agriculture in the 60s"; and George Doherty, executive vice president, Topco Associates, Inc., on "What Fertilizer the Grocery Shopper will Buy."

Friday morning, October 13: Dr. Martin Weeks, professor of agronomy, University of Massachusetts, on "Fertilizer Placement"; Dr. Cecil Brown, professor of agronomy, University of Maine, on "The Role of Fertilizer in Increasing Yields and Decreasing Unit Production Costs"; and Dr. Nyle Brady, head, Agronomy Department, Cornell University, on "Factors That Limit Response to Fertilizer."

For further information, write to Dr. Adams at 41 North Bridge St., Somerville, N. J.

Agronomy Society Meets November 27-30

The 1961 annual meeting of the American Society of Agronomy is scheduled for November 27-30 in St. Louis, Mo. Headquarters for the meeting will be the Sheraton-Jefferson Hotel, with some meetings also being held at the Statler-Hilton and in the Bishop Tuttle Memorial Building.

An estimated 1,500 agronomists and associated scientists will attend this 54th annual meeting of the Society, according to Dr. Matthias Stelly, executive secretary. More than 400 reports on crops and soils research will be presented. Meeting with the ASA as usual will be the Crop Science and the Soil Science Societies of America. Overall membership of the ASA now totals 4,400.

Special soils papers will mark the 25th anniversary of the Soil Science Society of America.

Crop Science of America meetings will study special factors influencing plant growth.

Other affiliated groups meeting with the ASA are the Council on Fertilizer Application, undergraduate students in agronomy, agronomic education specialists, extension agronomists, industrial agronomists and agronomists specializing in military land management.

NEW MISSISSIPPI OFFICERS

New officers of the Mississippi Soil Fertility and Plant Food Council, elected at the organization's recent convention at Biloxi, all reside in Jackson. They are (from the left) W. F. Harris, president; W. L. Ashley, vice-president, and Gene A. Triggs, secretary-treasurer.

MEETING BRIEFS

PAST

July 30-Aug. 2 The 16th annual meeting of the Soil Conservation Society of America brought more than 1300 people to Purdue, with the Indiana Chapter as hosts. They elected Roy D. Hockensmith, SCS soil survey director president. They announced four more area meetings, three in August—the final September 12-14 at Colorado Springs, Antlers Hotel.

August 10-12 The second annual convention of the Mississippi Soil Fertility and Plant Food Council elected W. F. Harris of Jackson, president,—and announced the 1962 convention for Biloxi, August 9-11. Keynote, by V-C's vice-president A. P. Gates: "The industry is selling profit, service, insurance, new ideas and ourselves and our companies . . . The best protection a farmer has against falling prices . . . is the use of recommended amounts of fertilizer."

FUTURE

September 14-15 A Soil Fertility School for fertilizer and lime salesmen and bankers at N. C. State College. Featured is a panel discussing the relative roles of education, banking, fertilizer and lime in the agronomy of the North Carolina area. Sponsored by the N. C. Bankers Association and the N. C. Soil Fertility Advisory Committee in cooperation with the N. C. State department of soils.

September 21 University of Minnesota ninth annual Beef-cattle-Grassland Field Day at the Rosemount AES. George Scarseth, di-

rector of the American Farm Research Association will talk. Subject: "All flesh is grass." Other speakers will cover pest control, feeding, fertilization and allied subjects.

September 24-27 American Institute of Chemical Engineers at the Lake Placid Club, Lake Placid, N. Y. 2000 are expected. The main theme: Management.

October 2-6 The National Hardware Show at McCormick Place, Chicago is of interest to our industry because lawn, garden and outdoor living products will be shown — 100,000 square feet of the 300,000 square feet of display space will be devoted to this subject.

October 18 The annual Kentucky Fertilizer Conference, moved from its usual July or August dating will be held at Spindletop, about 8 miles northwest of Lexington on the Ironworks Pike.

November 2-3 Annual convention of the Pacific Northwest Plant Food Association, Hotel Gearhart, Gearhart, Oregon . . . "down to earth, practical; retail distributors and mixers please note" because the program will be aimed primarily at their problems, according to president Harold Rud. "We want to get down to the meat and bone of distributor problems and questions" he says.

November 27 Council on Fertilizer Application, St. Louis, Mo. with Purdue's A. J. Ohlrogge presiding. Some of the subjects: capturing solar energy; understanding short periods of shade; understanding critical periods in plant development; fertilizer handling, placement; trace element reports; foliar analysis.

December 12-14 American Society of Agricultural Engineers will have an exposition concurrent with their Winter meeting, Palmer House, Chicago.

April 16-17, 1962 The 10th annual California Fertilizer Conference sponsored by the CFA Soil Improvement Committee. Theme: Innovations in Fertilizer Use and Applications. To be held on the campus of Chico State College, at Chico, Cal.

Industry Meeting Calendar

DATE	EVENT	LOCATION	CITY
Oct. 4-6	Southeastern Fertilizer Conference	Biltmore Hotel	Atlanta, Ga.
Oct. 12-13	Northeastern Fertilizer Conference	Schine Inn	Chicopee, Mass.
Oct. 16-17	Fertilizer Safety Conference	Pick-Congress Hotel	Chicago, Ill.
Oct. 25	Chemical Control Conference	Woodner Hotel	Washington, D.C.
Oct. 25-26	Fertilizer Control Officials	Woodner Hotel	Washington, D. C.
Oct. 30-Nov. 1	National Fertilizer Solutions Assn.	Edgewater Beach Hotel	Chicago, Ill.
Oct. 30-Nov. 1	Official Agricultural Chemists	Shoreham Hotel	Washington, D. C.
Nov. 2-3	Pacific N.W. Fertilizer Assn.	Gearhart Hotel	Gearhart, Oreg.
Nov. 8-10	Fertilizer Industry 'Round Table'	Mayflower Hotel	Washington, D. C.
Nov. 12-14	California Fertilizer Association	Jack Tar Hotel	San Francisco
	1962		
Jan. 10-12	Agricultural Ammonia Institute	Sheraton-Jefferson Hotel	St. Louis, Mo.

Control Officials Meet October 25-26

The fifteenth annual convention of the Association of American Fertilizer Control Officials will be held at the Woodner Hotel, Washington, D.C., October 25-26, according to an announcement from B. D. Cloaninger, secretary-treasurer. Below is the program line-up.

Wednesday Evening, October 25th

8:00 p.m.—Meeting of States Relations Committee

Thursday, October 26th

8:00-9:00 a.m.—Registration

Report of Secretary-Treasurer—B. D. Cloaninger, Clemson, South Carolina

Presidential Address—C. V. Marshall, Ottawa, Canada

Address—Dr. R. C. Edwards, President Clemson College

Fertilizers and Our Changing Agriculture—Dr. W. H. Garman, Chief Agriculturist, National Plant Food Institute.

Panel, Dr. F. W. Quackenbush, Moderator: Secondary, Minor and Trace Elements, as Related to:

1. Agronomic Needs—Dr. Frank G. Viets, Jr., Soil Scientist, USDA, Fort Collins, Colorado
2. Diagnosis and Recommendations—Dr. Robert E. Lucas, Extension Specialist in Soil Science, Michigan State University
3. Sale and Distribution—Gordon Cunningham, Tennessee Corporation, Atlanta, Georgia
4. Mixed Fertilizer Production—Dr. S. F. Thornton, Norfolk, Virginia

12:30 p.m.—Lunch

Afternoon Session

Woodner Hotel

1:45 p.m.—New Legislation—R. Z. Rollins, Chief, Division of Chemistry, Sacramento, California

2:10 p.m.—Report of Investigators

3:10 p.m.—Closed Session—Fertilizer Control Officials Only

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Fertilizer Round Table 1961 Program Outline

The executive committee of the Fertilizer Round Table has been circularizing the industry, and has come up with 175 questions which will be answered during the programs of November 8-10, at the Mayflower Hotel, Washington, D. C.

Secretary-treasurer Housden L. Marshall has sent us these notes on the make-up of the program, details to be amplified in our October issue:

Wednesday a.m.: Meeting will open with remarks by Vincent Sauchelli. He will be followed by a keynote speaker on the subject of materials handling. At the end of this paper will begin sessions to answer questions. The question of the pneumatic handling of bulk solids and unloading cars will be gone into rather thoroughly by qualified men.

Wednesday p.m.: The session will open with a paper on materials handling and weighing by Arthur Sanders of the Scale Manufacturers' Association, his subject being the fundamentals of weighing. Following this subject will be materials handling—liquids. Elmer Perrine of Allied Chemical Corp., Nitrogen Div. will handle the panel which is to answer all the questions regarding anhydrous ammonia and solutions. There will be a review of phosphoric acid by Tom Martin of U.S. Industrial Chemicals Co. Division of National Distillers & Chemical Corp. and sulphuric acid by Frank Nielsson of the Plant Food Division, International Minerals & Chemical Corp. The session will close with a discussion by an executive member of the National Safety Council on the inspiration of safety in a production plant.

Thursday a.m.: Continuing the materials handling theme with an extensive discussion on bags and bagging. This subject has been turned over to Frank Pocta of the Shipping Bag Association, who has selected a very competent panel to give discussions on bag construction, bag handling, bag closure and proper stowing of bags in cars and trucks.

Continuing the theme there will be a discussion of dust collection in the plant. G. Schneider of Western Precipitation will present a review of their experiences and equipment for accomplishing the collection of dust. He will be followed by L. A. Eiben of Buell Engineering Co., Northern Blower Division, who will give a very complete discussion of their dust collection system.

Thursday p.m.: Should the a.m. program exceed the allotted time, it

(concluded on page 66)

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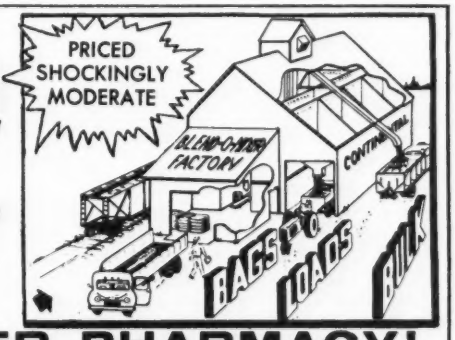

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Pictures from Southwest Fertilizer Meeting

Southwest Conference "Most Informative"

Southwest Fertilizer Conference and Grade Hearing at Galveston, Texas July 19-22, was hailed by those attending as one of the most informative in the history of the meetings. Theme of the conference was "Fertilizer Needs and Consumption in the Southwest." The subject "Where Are We and Where Should We Be" was moderated by John E. Hutchinson, director of Agricultural Extension Service of Texas, who said, "Fertilizer is a real bargain. Farmers are getting back $3.00 for $1.00, according to USDA sources." Serving on this panel were Woody Miley, Extension department, Arkansas; and John Cox, program specialist, in charge of soil testing, Texas. The following information was presented by the panel. See table 1.

The second panel, moderated by Dr. Sam Tisdale, Sulphur Institute Agronomist, covered the subject "How We Are Going To Get There." Kenneth Bates, assistant director, Agricultural Extension Service, University of Arkansas, talked on the intensified soil fertility program in Arkansas. He mentioned that Arkansas now has two soil test labs, one at the University and the other at the Cotton Branch Experiment Station in Mariana. They are processing 50,000 soil samples annually. It was indicated that two extension soil specialists who spend most of their time teaching good soil fertility practices. Mr. Bates said, "One of the most valuable aids in the soil fertility project is that the county agents are now writing the recommendations for farmers based on the soil test."

TABLE 1: SOUTHWEST FERTILIZER TALLY

	N	P_2O_5	K_2O
Arkansas			
Needs (tons)	193,698	136,997	132,496
Used (fertilizer)	65,731	32,339	46,501
Used (poultry manure)	22,650	15,176	10,193
Percent of need used, 1959-60	38	27	38
Louisiana			
Needs	208,642	106,995	107,895
Used (1959)	55,759	23,188	19,733
Percent of need used	26	21	18
Oklahoma			
Needs	197,868	212,912	160,679
Used	24,700	42,500	8,700
Percent of need used	12.5	20	5.4
Texas			
Needs	1,352,795	739,597	335,710
Used (1959-60)	170,118	89,338	25,152
Percent of need used	12.6	12.1	7.5

Murray Renick, president of Rolla Feed Mills, Rolla, Missouri, pointed out the need for better management practices on the part of the dealer. He said dealers need to know their products better, know what the product will do for the customer, and should give better service to the customers. Mr. Renick stressed the importance of cutting expenditures, the value of advertising and well trained personnel. He mentioned the extreme importance of courtesy.

W. E. Wierenga, Merchandising vice president of California Chemical's Ortho Division, talked on selling the potential. (*See page* 24.)

Dr. Sam Tisdale summarized the second panel by saying: 1. Experiment Stations should investigate crop yields; 2. Experiment Stations should intensify work in the future; 3. Soil tests are a necessity for a good system of agriculture; 4. The fertilizer industry will provide more service in the future; 5. The industry will sell on the basis of a farmer's needs; 6. The industry should make a profit.

Honor plaques were presented to Dr. J. F. Fudge, Texas A&M, retiring control official chairman, for 35 years of service to the fertilizer industry and to Stanley M. Hackett, Shreveport, for the assistance in making the Southwest Fertilizer Conference nationally prominent.

The 1962 Southwest Fertilizer Conference was scheduled for July 18-21, in the Galvez Hotel, Galveston, Texas. Dr. N. D. Morgan, American Potash Institute, Shreveport, will serve as chairman of the Industry Committee, and Henry DeSalvo, head of the Arkansas State Plant Board will serve as chairman of the Control officials. Committees named for 1962 are:

Industry Committee: Mr. & Mrs. N. D. Morgan, chairman—Program & Arrangements; Dr. & Mrs. Ivan Miles, Olin Mathieson Chemical Corp.; Mr. & Mrs. Tom Wright, Tex-

← Key to S.W. Pictures

1. N. D. Morgan, American Potash Corp., and Joe Wright, Texas Farm Products.
2. Joe Craighead, Swift & Co.; Bob Borg, Bradley & Baker; Clyde Tandy, Port Fertilizer Co.; and Ben Gibson, Bradley & Baker.
3. Mrs. Bob Fisackerly and Mrs. Jim Crook.
4. Mr. & Mrs. A. L. McQuarry, Delta Fertilizer Co.
5. Clyde Tandy, Port Fertilizer & Chemical Co.; Lavoid Holloway and Joe Scroggs, Potash Co. of America.
6. Mrs. Dave Seay, and James Campbell of Virginia-Carolina Shemical Corp.
7. Lloyd Dhonau, Ark. Plant Food Co.
8. Mr. & Mrs. S. M. Hackett, Dixie Fertilizer Co.
9. Mr. & Mrs. Bob Fisackerly, Mississippi Chemical Corp.
10. Mr. & Mrs. Walter Horn, Farmers Chemical Co.
11. Mr. & Mrs. Brown Beagley, Spencer Chemical Co.
12. J .C. O'Neal, Monsanto Chemical Co.; Jack Carlisle, Jacksonville Fertilizer Co.; and Kay Chandler, Best Fertilizer.
13. Fielding Reed, American Potash Institute, and Mr. & Mrs. E. K. Chandler, Best Fertilizer.
14. Mr. & Mrs. Roy Cook, Phillips Chemical Co., and Dr. & Mrs. N. D. Morgan, American Potash Inst.
15. Mr. & Mrs. Damon Robinson, Kelly, Weber & Co., and Mr. & Mrs. Leonard Lyles, American Potash Corp.
16. Mrs. Jack Lindsey; Mrs. N. D. Morgan; and Mrs. Stanley Hackett.

SPEAKERS AT SOUTHWEST CONFERENCE

1. N. D. Morgan, American Potash Institute, Conference chairman.
2. Panel John E. Hutchinson (moderator) Texas Agricultural Extension; W. F. Bennett; Gaylord Hanes, Okla. State Univ.; and Woody Miley, Ark. Extension Service.
3. John Cox, La. Extension Service.
4. Kenneth Bates, Ark. Extension Service, and Sam Tisdale, Sulphur Institute.
5. Murray Renick, Rolla Feed Mills.
6. W. E. Wierenga, Ortho Div., California Chemical Co.

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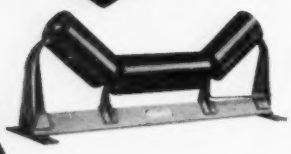

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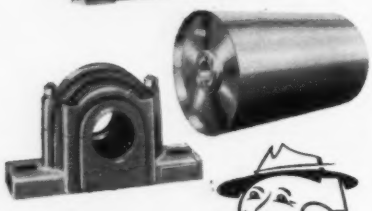

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3. Gordon Cunningham, Tennessee Corp., and Bill Sample, U. S. Testing Labs.

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Texas Sales Tax Exempts Fertilizer

The new Texas sales tax exempts a number of items necessary to the operation of a farm or ranch. Among the items exempt from the 2 per cent tax is fertilizer to be applied to land where products are to be sold for food.

ROUND TABLE PROGRAM

(continued from page 63)

will be carried over to the afternoon session with the completion of dust collecting. Then will be presentation of a survey of ammoniation practices by A. B. Phillips of TVA, assisted by Larry Long of Croplife.

Friday a.m. the session will be opened with the annual business meeting which will probably be of short duration. Then Travers Hignett of TVA handles a panel which will discuss the composition and uses of new materials in fertilizer formulation. This subject will cover conventional, semi-granular, granular and bulk blending and the question of uniformity will be explained extensively. The meeting will close after this discussion with a review of conditioning agents in mixed fertilizers by John Hardesty of U.S.D.A., who will bring the usage of these agents up to date as far as is known.

Obituaries

Hubert Edward Causey, 54, technical service representative, agricultural chemicals division, International Minerals and Chemical, Atlanta, of a heart attack in a Dothan, Alabama hospital. His home was in East Point, Ga.

Harold William Lust, 63, owner and general manager of the Tyler Fertilizer Co., Tyler, Texas, died at his home July 24 after a long illness.

Pearson E. Neaman, 57, director and chairman of the executive committee, Freeport Sulphur, died August 10 in a New York hospital.

Bernhard Peterson, 73, died of a heart attack in a Marion, Ohio, hospital July 26. Included in the three businesses he owned was Na-Churs Plant Life Food Co.

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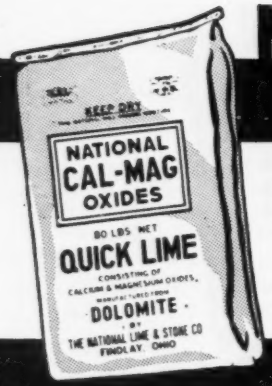

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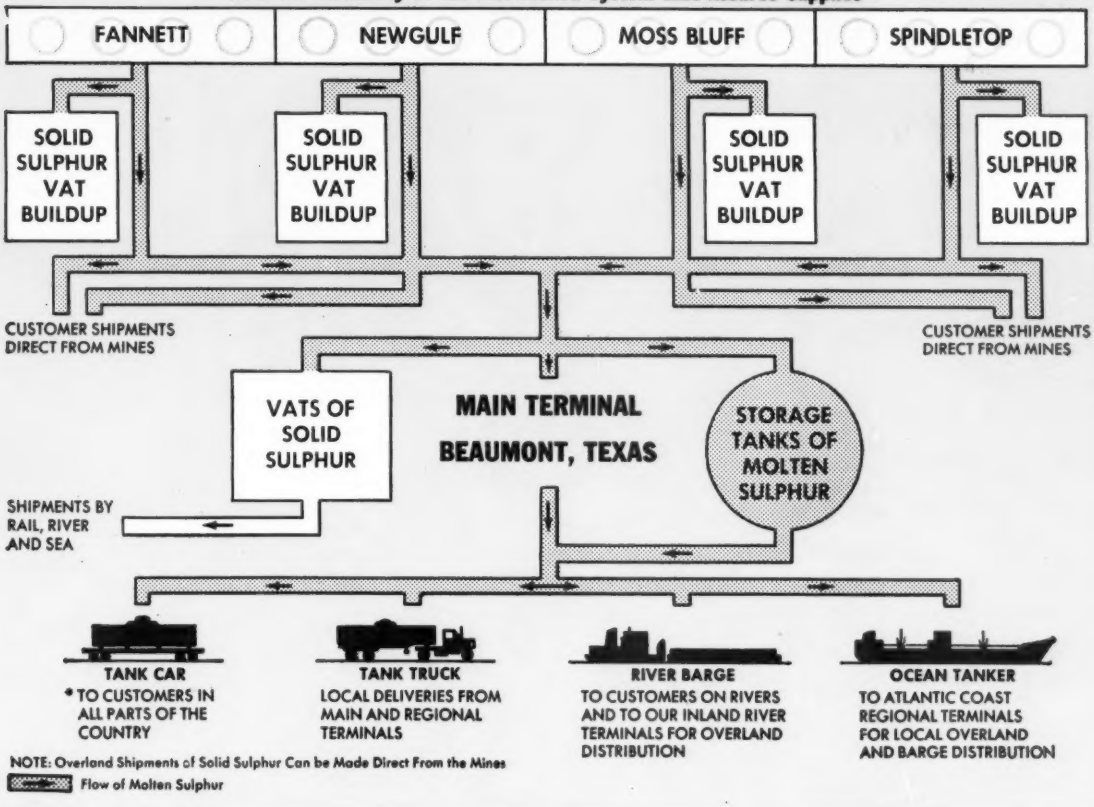
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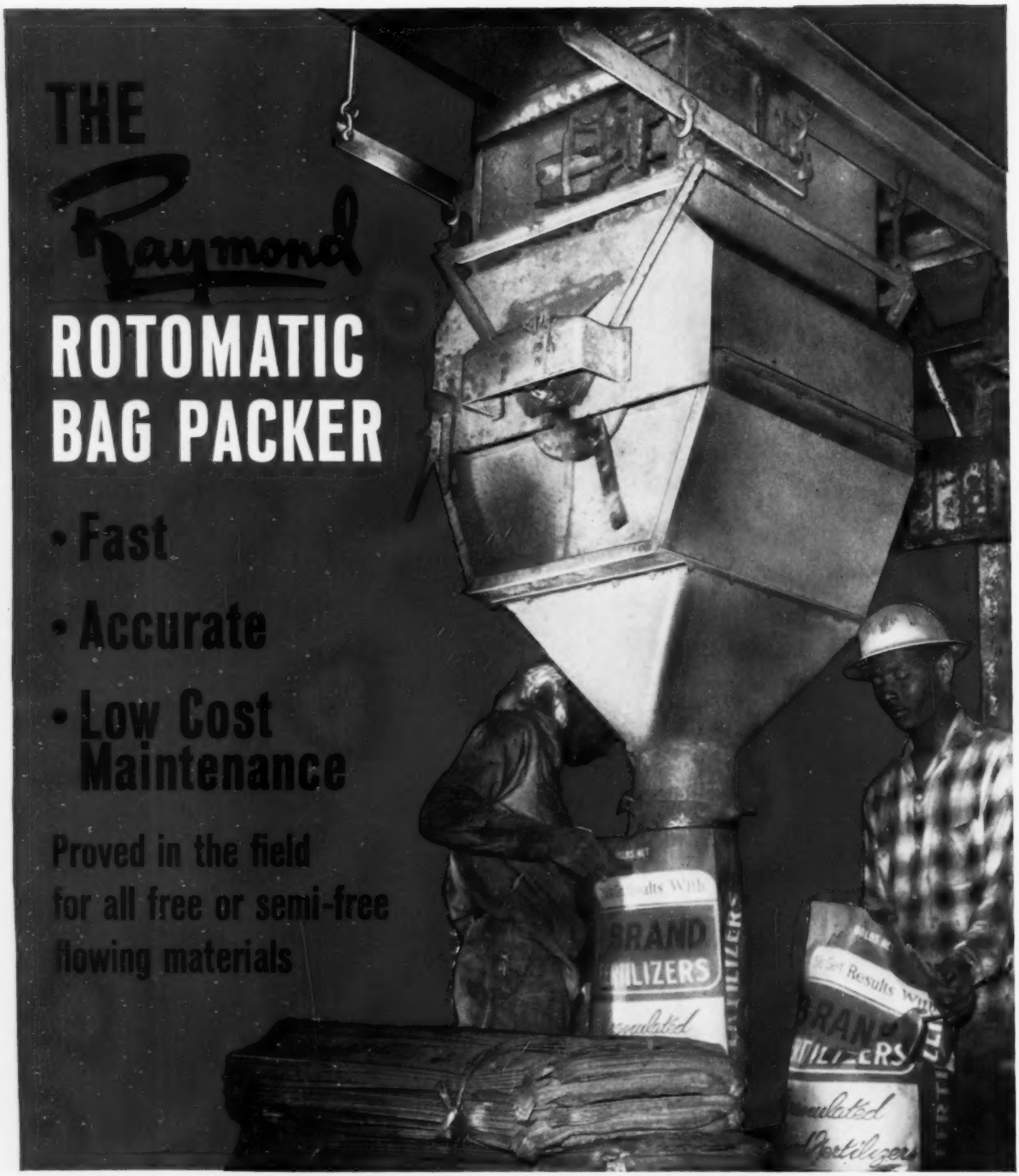

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